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FELLOW OF THE ROYAL, LINNEAN, & HORTICULTURAL SOCIETIES,

&c. &c.

OF HENFIELD, SUSSEX;

TO WHOSE EXTENSIVE KNOWLEDGE, SCIENTIFIC RESEARCHES, AND NUMEROUS VALUABLE DISCOVERIES IN EVERY DEPARTMENT OF THE SCIENCE, THE BOTANY, AND THE BOTANISTS, OF THIS COUNTRY ARE SO GREATLY INDEBTED.

This Volume

OF

BRITISH PHÆNOGAMOUS BOTANY,

IS MOST RESPECTFULLY DEDICATED,

AS A SMALL, BUT SINCERE, TOKEN
OF REGARD AND ESTEEM,

BY HIS OBLIGED,

AND VERY OBEDIENT HUMBLE SERVANT,

WILLIAM BAXTER.

Botanic Garden, Oxford, October 24, 1840. The all-benificent! I bless Thy name, That Thou hast mantled the green earth with flowers, Linking our hearts to nature! By the love Of their wild blossoms, our young footsteps first Into her deep recesses are beguiled, Her minster cells; dark glen and forest bower, Where, thrilling with its earliest sense of Thee, Amidst the low religious whisperings And shivery leaf-sounds of the solitude, The spirit wakes to worship, and is made Thy living temple. By the breath of flowers, Thou callest us, from city throngs and cares, Back to the woods, the birds, the mountain streams, That sing of Thee! back to free childhood's heart, Fresh with the dews of tenderness! Thou bidd'st The lilies of the field with płacid smile Reprove man's feverish strivings, and infuse Through his worn soul a more unworldly life, With their soft holy breath. Thou hast not left His purer nature, with its fine desires, Uncared for in this universe of Thine! The glowing rose attests it, the beloved Of poet hearts, touch'd by their fervent dreams With spiritual light, and made a source Of heaven-ascending thoughts. E'en to faint age Thou lend'st the vernal bliss :- the old man's eye Falls on the kindling blossoms, and his soul Remembers youth and love, and hopefully Turns unto Thee, who call'st earth's buried germs From dust to splendour; as the mortal seed Shall, at Thy summons, from the grave spring up-To put on glory to be girt with power, And fill'd with immortality. Receive Thanks, blessings, love, for these Thy lavish boons, And, most of all, their heavenward influences, O Thou that gavest us flowers!

Mas. Hemans,

7 1 A



HYOSCY'AMUS*.

Linnean Class and Order. Penta'ndria †, Monogy'nia. Natural Order. Sola'nex, Juss. Gen. Pl. p. 124.—Sm. Gram.

of Bot. p. 101.—Lindl. Syn. p. 180.; Introd. to Nat. Syst. of Bot. p. 231.—Rich. by Macgilliv. p. 435.—Loud. Hort. Brit. p. 527.—Mack. Fl. Hibern. p. 189.—Hook. Brit. Fl. (4th edit.) p. 414.—Macr. Man. Br. Bot. p. 163.—Solana'ceæ, Don's Gen. Syst. of Gard. and Bot. v. iv. p. 397.—Syringales; subord. Primulosæ; sect. Solaninæ; type, Solanaceæ; subty. Solanidæ; Burn. Outl. of Bot. v. ii. pp. 900, 959, 982, 983, & 987.—Luridæ, Linn.

GEN. CHAR. Calyx (figs. 1 & 5.) inferior, large, permanent, of 1 sepal, tubular; swelling below, 5-cleft above, segments pointed. Corolla (fig. 2.) of 1 petal, funnel-shaped, irregular; tube cylindrical, short; limb rather spreading, in 5, deep, blunt, rounded segments, one of which is broader than the rest. Filaments (fig. 3.) 5, awl-shaped, from some part of the tube of the corolla, inclining, somewhat unequal in length. Anthers heart-shaped, incumbent. Germen (see fig. 4.) roundish. Style (see fig. 4.) thread-shaped, reclining, the length of the longer stamens. Stigma (see fig. 4.) capitate. Capsule (fig. 6.) egg-shaped, filling the body of the calyx (see fig. 5), blunt, somewhat compressed and marked with a longitudinal furrow at each side, of 2 cells, opening transversely by a convex lid; receptacles (placentas) (see figs. 7 & 8.) oblong, convex, attached to the perpendicular partition. Seeds (see fig. 9.) numerous, inversely egg-shaped, curved, dotted, covering the receptacles.

The monopetalous, inferior, funnel-shaped corolla; the capitate stigma; and the 2-celled capsule, opening at the apex by a transverse aperture; will distinguish this from other genera in the same

class and order.

One species British.

HYOSCY'AMUS NI'GER. Black Henbane . Common Henbane. Hog-bean.

SPEC. CHAR. Leaves clasping the stem, sinuated. Flowers sessile.

Engl. Bot. t. 591.—Sims in Curt. Bot. Mag. t. 2394?—Woodv. Med. Bot. v. i. p. 143. t. 52.—Steph. and Church. Med. Bot. v. i. t. 9.—Johnson's Gerarde, p. 353.—Linn. Sp. Pl. p. 257.—Huds. Fl. Angl. (2nd ed.) p. 92.—Willd. Sp. Pl. v. i. pt. 11. p. 1010.—Sm. Fl. Brit. v. i. p. 254.; Engl. Fl. v. i. p. 315.—With. (7th ed.) v. ii. p. 316.—Gray's Nat. Arr. v. ii. p. 329.—Lindl. Syn. p. 181.—Hook. Brit. Fl. p. 94.—Macr. Man. Br. Bot. p. 165.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 471.—Lightf, Fl. Scot. v. i. p. 144.—Sibth. Fl. Oxon. p. 77.—Abbot's Fl. Bedf. p. 50.—Thorn. Fam. Herb. p. 181, with a figure.—Davies' Welsh Bot. p. 23.—Purt. Midl. Fl. v. i. p. 128.—Relb. Fl. Cant. (3rd edit.) p. 95.—Hook. Fl. Scot. p. 78.—Grev. Fl. Edin. p. 53.—Fl. Devon. pp. 40 & 150.—Johnst. Fl. of Berw. v. i. p. 60.—Winch's Fl. of Northumb. and Durh. p. 15.—Walker's Fl. of Oxf. p.

Fig. 1.—Calyx.—Fig. 2. Corolla.—Fig. 3. Stamens.—Fig. 4. Germen, Style, and Stigma.—Fig. 5. Calyx, enclosing the ripened Capsule.—Fig. 6. Capsule.—Fig. 7. Transverse section of ditto.—Fig. 8. The Receptacle and Partition.

^{*} From us, uos, Gr. a hog; and kuamos, Gr. a bean. Hogs are said to eat the fruit, which bears some resemblance to a bean. Hooker.

† See folio 48, note †. ‡ From its being destructive to Hens.

Perry's Pl. Varv. Selectæ, p. 21.—Bab. Fl. Bath. p. 33.—Murr. North. Fl. p. 140.—Dick. Fl. Abred. p. 29.—Irv. Lond. Fl. p. 139.—Luxf. Reig. Fl. p. 19.—Mack. Catal. Pl. Irel. p. 24; Fl. Hibern. p. 190.—Hyoscyamus vulgaris, Ray's Syn. p. 274.

LOCALITIES.—On waste ground, by road-sides, and on banks, and commons, in a dry gravelly or chalky soil, especially near towns and villages, whence Linnæus remarks, that it associates with mankind, like the Magpie, and some other birds.

Biennial.—Flowers from June to August.

Root spindle-shaped. Stem from one to four feet high, upright, round, tough, branched, woolly towards the top, very leafy. Leaves alternate, sessile or stein-clasping, soft and pliant, somewhat egg-shaped, sinuated, with sharp lobes, downy and viscid, exhaling a powerful and oppressive odour, like all the rest of the plant. Flowers numerous, from the bosoms of the crowded upper leaves, almost entirely sessile. Calyx a little distended on the under side, woolly at the base, the tubular part enlarging and enclosing the seed-vessel. Corolla of a pale yellowish-brown, beautifully netted with purple veins, and a dark purple eye or base. Filaments white. Anthers and Style of a fine deep purple. Capsules in two rows, all turned to one side, enclosed in the permanent calyx, and forming a kind of unilateral, leafy spike. Each capsule contains a great number of small seeds, which find egress by the rounded convex top coming off, like the iid of a box.—A variety of this species with the corolla destitute of the purple veins, has been observed at Fincham, Norfolk, by the Rev. R. Forby.

Whole plant powerfully narcotic, and when taken in any considerable quantity, proves quickly poisonous; well authenticated instances of its fatal effects are recorded. Madness, convulsions, and death, are the general consequences; yet medicinal preparations of no small importance are obtained from this plant, which, according to the experience of Dr. Murray, are the best substitute for optum which we have; possessing in no small degree its useful qualities, without causing the bad effects, fairly attributed to that medicine. The roots strung in the form of beads are the anadyne necklaces tied round the necks of children to facilitate the growth of their teeth. The fumes from the seeds, heated in the bowl of a tobacco-pipe, placed in the fire, and applied by a funnel to a carious tooth, have been recommended in severe fits of toothache.

The Natural Onder Services to which the

The Natural Order, Solaneze, to which the present plant belongs, is composed of Dicotyledonous herbs or shrubs, whose leaves are alternate, without stipulas, sometimes opposite beneath the flowers. They have a 5-parted, seldom 4-parted, permanent, inferior calyx; a monopetalous, inferior corolla, with the limb 5-cleft, seldom only 4-cleft, regular, or somewhat unequal, deciduous, the æstivation, in the genuine genera of the order, plaited; in the spurious genera imbricated. Their stamens are inserted into the corolla, and correspond in number with the segments of its limb, with which they are alternate; one sometimes being abortive. The pericarpium is 2- or 4-celled, and is either a capsule, with a double dissepiment parallel with the valves, or a berry, with the placentæ adhering to the dissepiment. The seeds are numerous, and sessile. The embryo, which is included in a fleshy albumen, is more or less curved, and often out of the centre; with its radical next the hilum.

The British genera in this order are, Datura, t. 121; Hyoscyamus, t. 321; Solanum, t. 110; Atropa, t. 10; and Verbascum, t. 85. The latter is referred, by Sir J. W. Hooker, to Scrophularing.

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E'RVUM*.

Linnean Class and Order. DIADE'LPHIA †, DECA'NDRIA. Natural Order. LEGUMINO'S.E., Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Macgilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259 .- Loud. Hort. Brit. p. 509 .- Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—Legumina'ce.e., Loud. Arb. Brit. p. 561.—Papiliona'ce.e., Linn.—Rosales; sect. Cicerin.e.; subsect. Lotian.e.; type, Lathyrace.e.; subtype, Vicid.e.; Burn. Outl.

of Bot. pp. 614, 638, 642, 659, & 661.

GEN. CHAR. Calyx (fig. 1.) inferior, tubular, cut about half way down, into 5, strap-shaped, taper-pointed segments, shorter than the corolla; the lowermost rather the longest. Corolla (see fig. 2.) of 5 petals; standard (see figs. 2 & 3.) largest, inversely egg-shaped, slightly reflexed; wings (fig. 5.) half as long, blunt; keel (fig. 4.) nearly equal to the wings, rounded, with a sharp point, of 2 combined petals, with separate claws. Filaments (see fig. 6.) 10; 9 united into a compressed tube, open at the upper edge; the tenth hair-like, distinct, closing the fissure. Anthers small, round-Germen (fig. 7.) oblong, compressed. Style (see fig. 7.) cylindrical, half as long, ascending at a right angle. Stigma terminal, capitate, downy all over. Legume (fig. 8.) oblong, compressed, bluntish, tumid only from the projection of the sceds, which are from 2 to 4, roundish, a little flattened (fig. 9).

The smooth style; the capitate stigma, hairy all over; and the 2- or 4-seeded legume; will distinguish this from other genera,

with diadelphous stamens, in the same class and order.

Two species British.

E'RVUM HIRSU'TUM. Hairy-podded Tare. Tine Tare. Rough-podded Tare.

SPEC. CHAR. Peduncles many-flowered. Legumes hairy,

2-seeded. Leaflets linear-oblong, abrupt.

2-seeded. Leaflets Innear-oblong, abrupt.

Engl. Bot. t. 970.—Curt. Fl. Lond t. .—Linn. Sp. Pl. p. 1039.—Huds. Fl. Angl. (2nd ed.) p. 321.—Willd. Sp. Pl. v. iii. pt. II. p. 1113.—Sm. Fl. Brit. v. ii. p. 776.; Engl. Fl. v. iii. p. 289.—With. (7th edit.) v. iii. p. 847.—Lindl. Syn. pp. 83.—Hook. Brit. Fl. p. 324.—Maer. Man. Brit. Bot. p. 58.—Lightf. Fl. Scot. v. i. p. 398.—Sibth. Fl. Oxon. p. 225.—Abbot's Fl. Bedf. p. 159.—Davies' Welsh Bot. p. 70.—Purt. Midl. Fl. v. i. p. 334.—Relh. Fl. Cant. (3rd ed.) p. 295.—Hook. Fl. Scot. p. 216.—Grev. Fl. Edin. p. 158.—Johnst. Fl. of Berw. v. i. p. 161.—Fl. Dev. pp. 122 & 175.—Winch's Fl. of Northumb. and Durl. p. 48.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 326.—Walker's Fl. of Oxf. p. 210.—Pamp. Fl. of Battersea, p. 13.—Dick. Fl. Abred. p. 48.—Irv. Lond. Fl. p. 176.—Luxf. Reig. Fl. p. 63.—Mack. Catal. Pl. of Irel. p. 67.; Fl. Hibern. p. 81.—Vicia hirsuta, Gray's Nat. Arr. v. ii. p. 614.—Vicia Michelli, De Cand. Prod. v. ii. p. 360?—Vicia sylvestris, sive Cracca minima, Johns. Ger. p. 1228.—Cracca minor, Ray's Syn. p. 322. Syn. p. 322.

Fig. 1. Calyx.—Fig. 2. Ditto, and Corolla.—Fig. 3. Corolla only.—Fig. 4. The Keel.—Fig. 5. One of the Wings.—Fig. 6. The Stamens.—Fig. 7. Germen, Style, and Stigma.—Fig. 8. A Legume.—Fig. 9. A Seed.

^{*} From the Celtic erw, a ploughed field, of which it is the pest; or, from eruo, Gr. to pluck out; as necessary to be eradicated from the growing corn; to separate the tares from the wheat.

[†] See folio 77, note †.

[#] See folio 117, note #.

Localities.—In coro-fields, hedges, and pastures; often a troublesome weed.

Annual.—Flowers from June to August.

Root tapering, long, slender, and furnished with few fibres, some of them frequently bearing small granulations. Stems from 6 inches to 2 feet or more long, branched from the bottom, weak, slender, 4-cornered, nearly smooth, zigzag, and somewhat twisted; either climbing, or nearly prostrate, leafy. Leaves alternate, pinnated, the petiole terminated by a hranched tendril; leaflets either alternate or opposite, from 5 to 12 pair, their summits either blunt or notched, with a small point, darkish green above, and when viewed with a microscope, beautifully spotted with white, silvery dots; the under side of a silvery white. Stipulas in from 3 to 5 slender divisions, the upper one of which is usually the largest. Peduncles nearly as long as the leaves, axillary, supporting from 3 to 8 very small flowers, forming a small, unilateral raceme, and lying one over another. Calyx with strap-spear-shaped, nearly equal segments, longer than the tube. Corolla very small, pale blue, or almost white; standard (see figs. 2 & 3.) roundish, scarcely notched, a little recurved; wings (fig. 5.) adhering to the keel, oval, blunt, tapering at the base; keel shorter than the wings, and marked internally on each side with a dark spot. Legume (fig. 8.) short, compressed, rather truncate, hairy, dark brown, finely reticulated, pendulous, 2-seeded. Seeds globose, variegated, large and prominent.

This is a very troublesome weed in corn-fields; in wet seasons whole crops have been overpowered and wholly destroyed by it; hence it is sometimes called *Strangle Tare*. All sorts of cattle will eat it. The seeds when ground in flour affect it with a strong disagreeable flavour.

DR. WITHERING observes, that both the *Tine Tares (Ervum tetraspermum*, and *E. hirsutum*,) not only illustrate the old adage, that "ill weeds grow apace," but that they likewise increase by superabundant fertility; for it appears from experiment, that a single seed will, by the produce of one plant only, multiply itself a thousand fold in a very short time.

As far as I have observed, neither of the *Tine Tures* are very common about Oxford; but in the neighbourhood of Rugby, in Warwickshire, in July, 1831, they were very abundant, not only in corn-fields, but also in meadows, pastures, under hedges, and by road-sides.

"The smallest flower
That twinkles through the meadow grass, can serve
For subject of a lesson; aye, as well
As the most gorgeons growth of Indian climes;
For love of nature dwells not in the heart
Which seeks for things beyond our daily ken
To bid it glow. It is in common life,
In objects most familiar, we find
Exhaustless matter for our privilege,
Our glorious privilege of reading Gon
Amid his bright oreation."
L. A. TWAMLEY.



THRI'NCIA *.

Linnean Class & Order. Sygene'siat, Polyga'mia, Equalist. Natural Order. COMPO'SITES, (Linn.), tribe, CICHORA'CE.E., Lindl. Syn. pp. 140 & 156.; Introd. to Nat. Syst. of Bot. pp. 197 and 201.—Loud. Hort. Brit. pp. 520 & 521.—Mack. Fl. Hibern. pp. 142 & 159.—Hook. Brit. Fl. (4th ed.) p. 410.—Сіснова'сеж, Juss. Gen. Pl. p. 168.—Sm. Gr. of Bot. p. 120.—SYNANTHE'REÆ, Rich. by Macgilliv. p. 454.—SYRINGALES; subord. ASTEROSÆ; type, CICHORACEÆ; Burn. Outl. of Bot. pp. 900, 901, & 935.

GEN. CHAR. Involucrum (common calyx) (fig. 1.) angular, imbricated; scales dilated at the base. Corolla compound, of numerous, imbricated, uniform, perfect, strap-shaped, blunt, 5-toothed florets (fig. 2). Filaments (see fig. 3.) 5, hair-like, very short. Anthers (see fig. 3.) united into a cylindrical tube. Germen (see fig. 2.) oblong. Style (see figs. 2 & 3.) thread-shaped, prominent. Stigmas 2, recurved. Seed-vessel none, except the converging, finally spreading involucrum. Seeds (see figs. 4 & 5.) oblong, striated, tapering into a beak; those next within the involucrum crowned with a row of short, flat, toothed scales only (see fig. 4.); the rest with a sessile, feathery pappus (see fig. 5). Receptacle (see fig. 7.) naked, dotted.

The imbricated involucrum; the naked receptacle; the seeds of the florets of the disk crowned with sessile, feathery, unequal pappus; and those of the ray with a short scaly cup only; will dis-

tinguish this from other genera in the same class and order.

One species British.

THRI'NCIA HIRTA. Hairy Thrincia. Deficient Hawkbit. Smaller Rough Dandelion.

SPEC. CHAR. Leaves spear-shaped, sinuately toothed; hairy, hairs frequently forked. Scapes naked, single-flowered; involu-

crum nearly smooth.

Willd, Sp. Pl. v. iii. pt. 111. p. 1554.—Lindl. Syn. p. 162.—Hook, Brit, Fl. p. 341.—Maer. Man. Brit. Bot. p. 141.—Bab. Fl. Bath. p. 29.—Mack. Catal. Pl. of Irel. p. 69.; Fl. Hibern. p. 165.—Thrica hirta, Gray's Nat. Arr. v. ii. p. 428.—Apargia hirta, Sm. Eng. Fl. v. iii. p. 352.—Hook. Fl. Scot. p. 228.—Grev. Fl. Edin. p. 167.—Fl. Devon. pp. 130 & 155.—Winch's Fl. of Northumb. and Durl. p. 51.—Walker's Fl. of Oxf. p. 224.—Irv. Lond. Fl. p. 151.—Hedypnois hirta, Engl. Bot. t. 555.—Sm. Fl. Brit. v. ii. p. 824.—Relh. Fl. Cant. (3rd ed.) p. 321.—Hedypnois hispidum, var. 3. Huds. Fl. Angl. (2nd edit.) p. 310.—Leontodon hirtum, Linn. Sp. Pl. p. 1123.—Curt. Fl. Lond. t. .—With. (7th edit.) v. iii. p. 890.—Sibth. Fl. Oxon. p. 283.—Abbot's Fl. Bedf. p. 170.—Purt. Midl. Fl. v. ii. p. 367.—Hieracium pumilum saxatile asperum, præmorså radice, Ray's Syn. p. 167. Syn. p. 167.

LOCALITIES .- On heaths and commons, especially on a gravelly soil; frequent. Perennial.—Flowers from June to August.

Fig. 1. The Involucrum.-Fig. 2. A single Floret.-Fig. 3. The Stamens and Pistil, showing the 5 Filaments, the united Anthers, and the Germen, Style, and Stigmas .- Fig. 4. A Seed of the circumference, crowned with a short scaly cup. --Fig. 5. A Seed of the disk, with its feathery pappus. - Fig. 6. A Ray of the pappus, magnified .- Fig. 7. The Receptacle, with the reflexed scales of the involucrum.

^{*} From thrinkos, Gr. a feather; in allusion to the feathery pappus, + See folio 91, note +, \$\displayset\$ See folio 147, note \$\displayset\$. See folio 27, a.

Root abrupt, not tapering. Leaves all radical, spreading, oblong-spear-shaped, toothed, rarely entire; of a yellowish-green colour, hairy, hairs generally simple, but sometimes forked at the extremity. Scapes (stalks) several from the same root, from 6 to 8 inches high, simple, round, hairy, single-flowered. Flowers about half the size of those of Apargia hispida (t. 318), drooping before expansion, and reddish. Involucrum almost entirely smooth. Florets strap-shaped, yellow, destitute of hairs on the tube, as well as of glands under their tips; the inner ones with a less perfect corolla than the outer row. The Seeds of the latter are crowned with a row of short, flat, toothed scales only (see fig. 4.), while those of the former bear sessile feathery down (see fig. 5).

This greatly resembles Apargia hispida, but it is a much smaller plant, and is readily distinguished from that, and its other congeners, by its nearly smooth calyx, and the want of feathery pappus to the outer row of seeds.

DAY STARS I that ope your eyes with man, to twinkle From rainbow galaxies of Earth's ereation, And dew-drops on her lonely altars sprinkle As a libation.

Ye matin worshippers! who, bending lowly Before the uprisen Sun, God's lidless eye, Throw from your chalices a sweet and holy Incense on high.

Ye bright Mosaics! that with storied beauty,
The floor of Nature's temple tesselate,
What numerous emblems of instructive duty
Your forms create!

Your voiceless lips, O Flowers! are living preachers, Each cup a pulpit, every leaf a book, Supplying to my fancy numerous teachers From loneliest nook.

Floral Apostles! that, in dewy splendour,
"Weep without woe, and blush without a crime,"
Oh! may I deeply learn, and ne'er surrender
Your lore sublime.

In the sweet-seented pictures, heavenly Artist!
With which thou paintest nature's wide-spread hall,
What a delightful lesson thou impartest
Of love to all!

Not useless are yc, Flowers! though made for pleasure;
Blooming o'er field and wave, by day and night,
From every source your sanction bids me treasure
Harmless delight.

Posthumous glories! angel-like collection!
Upraised from seed or bulb interred in earth,
Ye are to me a type of resurrection,
And second birth.

Were I, O God! in churchless lands remaining, Far from all voice of teachers or divines, My soul would find, in flowers of thy ordaining, Priests, sermons, shrines?!

HORACE SMITH.

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FESTU'CA *.

Linnean Class and Order. TRIA'NDRIA+, DIGY'NIA.

Natural Order. GRAMI'NE.E., Juss. Gen. Pl. p. 28.—Sm. Gram. of Bot. p. 86.; Engl. Fl. v. i. p. 71.—Lindl. Syn. p. 293.; Introd. to Nat. Syst. of Bot. p. 292.—Rich. by Macgilliv. p. 393.—Loud. Hort. Brit. p. 542.—Mack. Fl. Hibern. p. 294.—Hook. Brit. Fl. (4th edit.) p. 426.—Gramina, Linn.—Graminales; sect. Festucinæ; type, Avenaceæ; Burn. Outl. of Bot. v. i. pp. 359 and 369.

GEN. CHAR. Panicle loose, more or less spreading. Spikelets (fig. 2.) oblong, compressed, of many alternate, 2-ranked, more or less awned, perfect florets. Calyx (fig. 1.) of 2 unequal, spearshaped, sharp pointed concave, keeled glumes. Corolla (fig. 3.) of 2 unequal palea (valves); the outer generally nearly cylindrical, entire, pointed or awned at the summit, keeled, concave, scarcely compressed, more or less ribbed, longer than the calyx, a little inflexed at the edges; inner narrower, elliptic-oblong, 2-ribbed, cloven or abrupt at the summit, the margins membranous, folded in at each rib, which is, for the most part, downy externally. Nectary (fig. 5.) of 1, deeply divided, or of 2 separate, sometimes cloven, pointed scales. Filaments (see fig. 3.) 3, hair-like, shorter than the corolla. Anthers strap-shaped, pendulous, notched at each end. Germen (see fig. 4.) turbinate. Styles distant, short. Stigmas (see fig. 4.) feathery. Seed oblong, with a longitudinal furrow, pointed, quite loose, though closely enveloped in the unchanged corolla.

The loose panicle; the calyx of 2 unequal glumes, containing many florets; and the corolla of 2 spear-shaped paleæ, the outer one pointed or awned at the summit; will distinguish this from other genera in the same class and order. See Hook. Brit Fl.

(4th edit.) t. 2. f. 28.

Ten species British. (Hook. Br. Fl.)

FESTU'CA PRATENSIS. Meadow Fescue-Grass.

SPEC. CHAR. Panicle spreading, branched. Spikelets strap-shaped, many-flowered. Florets cylindrical, awnless, outer valve (palea) of the corolla pointed. Leaves strap-shaped. Root fibrous.

Engl. Bot. t. 1592.—Curt. Fl. Lond. t. .—Knapp's Gram. Brit. t, 73.—Curt. on Brit. Grasses, (5th ed.) p. 14. t. 5.—Mart. Fl. Kust. t. 84, (in a late stage of flowering).—Graves' Monogr. Br. Grasses, t. 90.—Sincl. Hort. Gram. Wob. p. 149, with a plate.—Huds. Fl. Angl. (1st ed.) p. 37.—Sm. Fl. Brit. v. i. p. 123; Engl. Fl. v. i. p. 147.—With. (7th ed.) v. ii. p. 183.—Hook. Brit. Fl. p. 47.—Maer. Man. Brit. Bot. p. 272.—Sibth. Fl. Oxon. p. 45.—Abb. Fl. Bedf. p. 21.—Purt. Midl. Fl. v. i. p. 82.—Davies' Welsh Bot. p. 11.—Relh. Fl. Cant. (3rd ed.) p. 41.—Salisb. Bot. Comp. v. ii. p. 7.—Hook. Fl. Scot. p. 40.—Grev. Fl. Edin. p. 27.—Fl. Devon. pp. 20 & 125.—Johnst. Fl. of Berw. v. i. p. 27.—Winch's Fl. of Northumb. and Durh. p. 7.—Baxt. Lib. Agr. and Hort. Knowl. (2nd edit.) p. 299, with a figure.—Loud. Mag. Nat. Hist. v. i. p. 382, with a figure.—Walker's Fl. of Oxf. p. 27.—Bab. Fl. Bath. p. 58.—Murr. North. Fl. p. 71.—Dick. Fl.

† See folio 36, note t.

Fig. 1. The Calyx or Glumes.—Fig. 2. A Spikelet.—Fig. 3. A Floret, showing its 2 Paleæ, its Stamens, and Pistils.—Fig. 4. Germen, Styles, and Stignias.—Fig. 5. The Nectary.

* From the Celtic, fest, according to Their, which signifies food, pasturage.

Abrod. p. 24—Iv. Lond. Fl. p. 99.—Luxf. Reig. Fl. p. 9.—Mack. Catal. Pl. of Irel. p. 15.; Fl. Hibern. p. 309.—Festuca elatior, Linn. Fl. Suec. p. 32.—Host. Gram. Austr. v. ii. p. 57. t. 79.—Schreb. Besch. der Gräser. v. i. p. 34. t. 2.—Leers' Fl. Herb. (2nd edit.) p. 34. t. 8. f. 6.—F. elatior, var. 2. pratensis, With. (5th edit.) v. ii. p. 206.—F. fluitans y. pratensis, Huds. Fl. Angl. (2nd edit.) p. 41.—Schedonorus pratensis, Gray's Nat. Arr. v. ii. p. 114—Lindl. Syn. p. 312.—Gramen paniculatum elatius, spicis longis muticis squamosis, Ray's Syn. p. 411.; but not Barrel. lc. t. 25.

Localities.—In meadows and pastures.
Perennial.—Flowers in June and July.

Root fibrous, tufted. Culms several, upright, from 1 to 2 feet high, simple, round, smooth, leafy, bent at the lowest joint only. Leaves spreading, strap-shaped, pointed, flat, striated; those on the culms rough on both sides. Sheaths striated, very smooth. Liquia (stipula) very short, I lunt, often torn, decurrent, clasping the stem. Panicle nearly upright, branched, spreading, the branches inclining to one side, solitary or in pairs, unequal, their pedicels rough and compressed; all closed together after flowering. Spikelets strap-shaped, compressed, of 8 or 9 florets. Glumes (fig. 1.) unequal, rather sharp-pointed, keeled, smooth, the larger one eggspear-shaped, with 3 or 5 ribs; the smaller single-ribbed. Outer palea (valve of the corolla) cylindrical, keeled, more or less of a purplish colour, smooth, except the keel, ending in a membranous point, which in the upper florets is sometimes cloven, and attended by a short awn; inner palea downy at the margin. Nectary with Germen (fig. 4.) inversely egg-shaped; Styles short and distant; Stigmas thick and feathery. Seed loose, spear-shaped, pointed, channelled along the upper side.

This is one of the most valuable of our Grasses, and is highly esteemed by all persons practically acquainted with the produce of our meadows; its foliage is juicy, sweet, and abundant, and in rather moist situations it will bear the scythe more than twice in the season. "No plant whatever," says Mr. Salibury, "deserves so much the attention of the grazier as this grass." It will grow in almost any soil, and all descriptions of cattle eat it, and are nourished by it. It is of easy culture, and yields abundance of seed, which grows very readily. It is recommended to lay down meadow-land with one bushel of this seed, one bushel of Alopecurus pratensis, three pounds of Anthoxanthum odoratum (t. 99.), and a little Bromus mollis, with Clover. Mr. Salibury informs us, that he made some excellent meadows with this seed, which, after a trial of ten

years, were equal to any in the kingdom.

From Mr. Sinclain's experiments, it appears that the Meadow Fescue Grass at the time of flowering is of greater value than at the time the seed is ripe, proportionally, as 3 to 1. That it is of greater value than that of the Meadow Foxtail (Alopecurus pratensis, t. 45.), in the proportion nearly of 11 to 9. That the Cock's-foot Grass (Dactylis glomerata, t. 108.) is superior in point of produce to the Meadow Fescue, in the proportion nearly of 2 to 1. But for grazing, Mr. Sinclain observes, the latter-math produce of the Meadow Fescue must be brought forward; in this case it approaches nearer to Cook's-foot in value, and increases its superiority, in point of produce, over the Meadow Foxtail.

In the vale of Aylesbury it constitutes a considerable portion of the most valu-

able and fattening pastures of that rich grazing district.

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RO'SA*.

Linnean Class and Order. ICOSA'NDRIA†, POLYGY'NIA.

Natural Order. ROSA'CER‡, Juss. Gen. Pl. p. 334.—Sm. Gram. of Bot. p. 171.—Lindl. Syn. p. 88.; Introd. to Nat. Syst. of Bot. p. 81.—Rich. by Macgilliv. p. 528.—Loud. Hort. Brit. p. 512.; Arbor. et Frutic. Brit. v. ii. p. 670.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 523.—Mack. Fl. Hibern. p. 85.—Hook. Brit. Fl. (4th ed.) p. 404.—Rosales; sect. Rosinæ; subsect. Rosianæ; type, Rosaceæ; subtype, Rosidæ; Burn. Outl. of Bot. v. ii. pp. 614,

683, 699, & 704.—SENTICOSÆ, Linn.

GEN. CHAR. Calyx (see fig. 1.) inferior, of 1 sepal; tube urnshaped, contracted at the mouth, permanent, finally succulent; limb in 5 deep, egg-spear-shaped, pointed, concave, imbricated, permanent or deciduous segments; either all simple, or 2 of them pinnate with leafy appendages on both sides; I on one side only, the other 2 naked on both sides. Corolla (fig. 2.) of 5, inversely heart-shaped, deciduous petals, about as long as the segments of the calyx, and attached by broad claws to the rim of its tube. Filaments (fig. 3, a.) numerous, hair-like, much shorter than the petals (see fig. 1.), attached to the rim of the calyx within the corolla. Anthers roundish, flattened, of 2 oblong tumid lobes. Germens (see figs. 3, 5, & 6.) numerous, oblong, inserted on the inside of the tube of the calyx, interspersed with dense silky hairs. Styles (see figs. 5 & 6.) 1 to each germen, lateral, smooth or hairy, all passing through the contracted mouth of the calyx; in some cases united into a cylinder (see figs. 3 & 5). Stigmas blunt. Fruit (figs. 7 & 8.) globose or egg-shaped, formed of the permanent, pulpy, coloured tube of the calyx, closed at the summit, and containing numerous, oblong, angular, hard, bristly seeds (achenia, Lindl.), interspersed with rigid hairs.

The urn-shaped, fleshy calyx, contracted at the orifice, and terminating in 5 segments; its tube lined with hairs, and with numerous bristly seeds; will distinguish this from other genera in the same

class and order.

Nineteen species British. Hook. Brit. Fl.

+ See folio 100, note +.

RO'SA ARVE'NSIS. Field Dog-Rose. Trailing Dog-Rose.

White-flowered Dog-Rose.

SPEC. CHAR. Shoots trailing. Prickles hooked; those on the root-shoots few, scattered. Leaflets simply serrated, glaucous beneath, their disk without glands. Segments of the calyx sparingly pinnate, deciduous. Styles united, smooth.

Engl. Bot. t. 188.—Hook. Fl. Lond. t. 123.—Huds. Fl. Angl. 1st edit. p. 192, and 2nd edit. p. 219.—Linn. Mant. 2, p. 245.—Willd. Sp. Pl. v. ii. pt. 11. p. 1066.—Sm. Fl. Brit. v. ii. p. 538; Engl. Fl. v. ii. p. 396.—With. (7th ed.) v. iii. p. 611.—Gray's Nat. Arr. v. ii. p. 574.—Woods in Trans. Linu. Soc. v. xii. p. 232.—Lindl.

‡ See folio 313, a.

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. A vertical section of the Calyx; a. Stamens; b. Pistils.—Fig. 4. A Stamen.—Fig. 5. The Pistils, united into a column.—Fig. 6. A separate Pistil.—Fig. 7. A Fruit.—Fig. 8. Vertical section of ditto.—Fig. 9. A Seed.

^{*} From the Celtic Rhos, red; in reference to the colour of the flowers of most of the species. Don.—The Rose is the national badge of England.

Syn. p. 102.—Hook. Brit. Fl. p. 241.—Macr. Man. Brit. Bot. p. 71.—Lightf. Fl. Scot. v. ii. p. 261.—Sibth. Fl. Oxon. p. 159.—Abbot's Fl. Bedf. p. 111.—Part. Midl. Fl. v. i. p. 247.—Davies' Welsh Bot. p. 49.—Relh. Fl. Cant. (3rd edit.) p. 200.—Hook. Fl. Scot. p. 158.—Grev. Fl. Edin. p. 114.—Fl. Devon. pp. 86 & 171.—Winch's Geog. Pl. (2nd ed.) p. 49.; Fl. of Northumb. and Darh. p. 34.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 583.—Loud. Arb. et Frutic. Brit. p. 772, with a figure.—Walker's Fl. of Oxf. p. 141.—Bab. Fl. Bath. p. 16.—Irv. Lond. Fl. p. 188.—Luxf. Reig. Fl. p. 44.—Cow. Fl. Faver. p. 45.—Mack. Catal. Pt. of Irel. p. 49.; Fl. Hib. p. 104.—Rosa repens, Jacq. Frag. p. 69. t. 104.—Rosa sylvestris altera minor, flore albo nostras, Ray's Syn. p. 455.

LOCALITIES.—In hedges, thickets, woods, and on the borders of fields, chiefly in the midland counties; not uncommon.

Shrub.—Flowers in June and July.

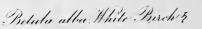
A bush about 3 or 4 feet high when unsupported, with abundance of trailing, glaucous, mahogany-coloured, arching shoots, frequently many feet in length, often feeble, much divided, and entangled, and occasionally producing rugged excrescences, which readily take root. Prickles all scattered, not in pairs, but little dilated at the base, hooked, those on strong shoots often compressedly conical, with a straight or curved point; those on the branches few, small, more or less curved. Leaflets 5, rarely 7, thin, nearly flat, simply, though sometimes unequally, serrated, dull green, paler and somewhat glaucous beneath, generally smooth on both sides, or slightly hairy beneath, chiefly on the midrib. Petioles (leaf-stalks) hairy, or glandular, or both, with hooked prickles. Stipulas strap-shaped, pointed, narrow, diverging at the tip, glandular at the margin. Bracteas, similar, strap-spear-shaped. Flowers rarely solitary, generally from 2 to 5 together, rather concave, slightly fragrant, white and very elegant; the buds frequently blush-coloured. Peduncles (flower-stalks) long, often dark red, smooth or sprinkled with almost sessile glands. Tube of the Calyx elliptic-oblong, glaucous, partly reddish, smooth, rarely glandular; segments smooth or somewhat glandular, with a few small, entire, spear-shaped pinnæ. Styles (see fig. 5.) united into a stout, furrowed, elongated, smooth column, often longer than the stamens, permanent. Stigmas smooth, crowded, and partly combined, into a round head. Fruit (Hip) small, spherical, egg-shaped, or elliptical; of a dark bloodred when ripe, with an orange-red pulp of a pleasant peculiar flavour.

Rosa arvensis is distinguished from all other British species, except R. systyla, by its styles being united in a long smooth column. From systyla it may be known by its cond-like, decumbent shoots, and solitary, scattered prickles. Three or four wild varieties are noticed by authors. The variety with hispid fruit I have seen in a hedge between the Canal and the Woodstock road, about a mile from Oxford. R. arvensis hybrida, or Double Hip-Rose, and R. arvensis Andersoni, are handsome varieties, and are frequently enlivated in gardens. The former is said to have been found in Devonshire; the latter in Somersetshire. The Ayrshire Rose, which is supposed by some to be of American origin, and to have been introduced into Ayrshire by the Earl of Loudon, is considered by some Botanists as only a variety of R. arvensis.—In all countries, where it is known, and in every age, the Rose has been held the Queen of Flowers, and the Poets of all nations and all languages have sung its praises. It has been made the symbol of various sentiments; and even of those the most opposite to each other. Piety employs it in adorning her holy temples; love expressed its tenderness by wreaths; gaiety revelled adorned with crowns of roses; grief strews it on the tomb; luxury spreads it on the couch; and modesty and purity receive it as their sweetest and most glorious reward. The beanty of the morning is allegorically represented by this flower; and Aurora is depictured strewing Roses before the chariot of Phœbus.

The Rose is the symbol of Silence; "under the Rose," means to be silent.



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W Willes S

BETULA *.

Linnean Class and Order. MONŒ'CIA†, POLYA'NDRIA.

Natural Order. BETULI'NEÆ, Rich. by Macgilliv. p. 544.—Lindl. Intr. to Nat. Syst. p. 93.—AMENTA'CEÆ, Linn.—Juss. Gen. Pl. p. 407.—Sm. Gr. of Bot. p. 189.—Lindl. Syn. p. 228.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 242.—Hook. Brit. Fl. (4th ed.) p. 419.—Querneales; type, Betulaceæ; Burn. Outl. of Bot. v. ii pp. 523 & 529.

GEN. CHAR. Barren Flowers (figs. 1 & 3.) numerous, forming a loose, cylindrical catkin (fig. 1.), imbricated all round, with ternate, concave scales (see fig. 3.); the middle one largest, eggshaped. Corolla none. Filaments 10 to 12, shorter than the middle scale, to which they are attached. Anthers roundish, 2-lobed. Fertile Flowers (figs. 2 & 5.) in similar, but more dense, catkins; scales horizontal, peltate, dilated outwards, 3-lobed, 3-flowered (see fig. 5). Corolla none. Germen (see fig. 5.) compressed, bordered, of 2 cells. Styles 2, awl-shaped, downy. Stigma simple. Nut (see figs. 6 & 7.) oblong, deciduous, winged at each side, of 1 cell, with a solitary kernel.

The ternate scales of the barren flowered catkins, destitute of a corolla, and bearing, on their middle lobe, from 10 to 12 stamens; the 3-lobed, 3-flowered scales of the fertile flowered catkin; the 2 styles; and the winged, deciduous, 1-seeded nut; will distinguish this from other genera in the same class and order.

Two species British.

BE'TULA ALBA. White Birch. Common Birch.

SPEC. CHAR. Leaves egg-shaped, acute, somewhat deltoid, unequally serrated, nearly smooth.

Eagl. Bot. t. 2198.—Fl. Dan. t. 1467.—Linn. Sp. Pl. p. 1393.—Huds. Fl. Angl. (2nd ed.) p. 416.—Evelyn's Silva, p. 225, with a plate.—Willd, Sp. Pl. v. iv. pt. r. p. 462.—Sm. Fl. Brit. v. iii. p. 1912.; Engl. Fl. v. iv. p. 153.—With. (7th edit.) v. ii. p. 246.—Gray's Nat. Arr. v. ii. p. 243.—Lindl. Syn. p. 229.—Hook. Brit. Pl. p. 409.—Maer. Man. Brit. Bot. p. 208.—Lightf. Fl. Seot. v. ii. p. 572.—Sibth. Pl. Oxon. p. 64.—Abbot's Fl. Bedf. p. 207.—Davies' Welsh Bot. p. 89.—Purt. Midl. Fl. v. ii. p. 455.—Relh. Fl. Cant. (3rd ed.) p. 390.—Hook. Fl. Scot. p. 274.—Phill. Syl. Florif. v. i. p. 123.—Grev. Fl. Edin. p. 203.—Syl. Sket. p. 45.—Loud. Arb. et Frutic. Brit. p. 1691. f. 1547.—Fl. Devon. pp. 155 & 135.—Johnst. Fl. Berw. v. i. p. 208.—Wineh's Fl. of Northumb. and Durh. p. 62.—Walker's Fl. of Oxf. p. 283.—Bab. Fl. Bath. p. 46.—Dick. Fl. Abr. p. 56.—Irv. Lond. Fl. p. 115.—Luxf. Reig. Fl. "p. 82.—Mack. Catal. Pl. Irel. Addenda; Fl. Hibern. p. 242.—Betula, Ray's Syn. p. 443.—Johnson's Gerarde, p. 1478.

LOCALITIES. —In woods and hedges, especially in heathy soils and in mountainous countries.

Tree.—-Flowers in April and May.

From 20 to 50 feet, or more, high, with the cuticle of the trunk whitish, and peeling off in thin laminæ. Branches subdivided,

Fig. 1. A Barren-flowered Catkin.—Fig. 2. A Fertile-flowered one.—Figs. 3 and 4. Barren Flowers.—Fig. 5. A Fertile Flower.—Figs. 6 and 7. Seeds.—Figs. 5 and 7, a little magnified.

^{*} From betu, the Celtic name for the Birch. It is the badge of the Highland Clan Buchanan. † See folio 83, note †.

long, slender, pliant, and flexible, covered, when young, with a short, close down. Leaves alternate, egg-shaped, or slightly triangular, pointed, unequally, or rather doubly, serrated, smooth above, a little downy beneath; assuming a golden colour in Autumn. Cathins terminal, stalked, pendulous; the barren flowered ones appear in the Autumn at the ends of the twigs, but do not expand their flowers till the fertile ones appear in the Spring, these fall all to pieces when ripe, and scatter the numerous winged seeds.

There is a variety of this tree in which the branches are elegantly pendent, and being a taller tree, and of more rapid growth than the common kind, is sometimes preferred for planting.—An excellent portrait of a full-grown Tree of this pendulous variety is given by Mr. Louoon, in the 233rd plate of his incomparable work, the "Arboretum et Fruticetum Britannicum."

The common Birch is a native of Europe, from Lapland to the subalpine parts of Italy. It is found also in Asia, in Siberia, as far as the Altaic Mountains; and also in the Himalayas; but not in Africa. In some parts of Russia, Mr. Loudon informs us, immense tracts are covered with this tree alone; and in the neighbourhood of Moscow, it forms the prevailing tree in all the woods belong-

ing to the country residences of the nobles.

The wood of the Birch is firm, tough, and white, and is useful for many purposes. The Scots Highlanders are said to make every thing of it; they build their houses of it; make their heds, chairs, tables, dishes, and spoons of it; construct their mills of it; make their carts, ploughs, harrows, gates and fences, of it. It is also used in many other parts of the country in machinery, turnery, wheel-work, and for lasts, pattens, woodden shoes, and such purposes. It is likewise much used in collieries for props and waggon-road sleepers. It is an excellent fuel, burning very clear, and emitting less smoke than most other woods. In the smoking of herings, in particular, Birch is preferred to all other kinds of wood. It makes the best charcoal, and its soot is a good lamp-black for printers' ink. The young pliant twigs make excellent besoms, and rois. The birchen-rod has been used as an instrument of correction at schools from the earliest ages, but its use, both in schools and private families, is now fast passing away, together with many other barbarous practices of our ancestors. The bark appears indestructible, (from its resinous quality,) and is extremely useful to the inhabitants of the north of Europe. In Kamschatka hats and drinking cups are formed of it. The Swedish fishermen manufacture shoes of it. The Norwegians cover their houses with it. Torches are made of it, sliced and twisted together, it heing highly inflammable. The portable cances of the North American Indians are commonly constructed with this material. The inner bark (some say the cuticle or outer bark) was one of the materials on which the ancients wroto before the invention of paper; and, according to PLINY and PLUTARCH, the works composed by Numa, (who had forbidden his body to be burnt,) were discovered in the tomb in a legible state, 400 years after his interment. The sap of the Birch is made into beer, wine, and vinegar; and a sugar is extracted, and a spirit distilled from it. A pyrogenous oil is procured from the bark by distillation, to

The Natural Order, BETULI'NEÆ, is composed of dicotyledonous trees or shrubs, the leaves of which are simple, with their primary veins running straight from the midrib to the margin; their stipulæ are deciduous. Their flowers unisexual, monoecious, and amentaceous; the barren ones sometimes having a membranous calyx. The stamens are distinct, scarcely ever united. The ovary superior, of 2 cells; the ovules definite, and pendulous; with 2 stigmas. The fruit is membranous, indehiscent, and 1-celled. The seeds pendulous, naked, and without albunen; with a straight embryo; and a superior radicle.

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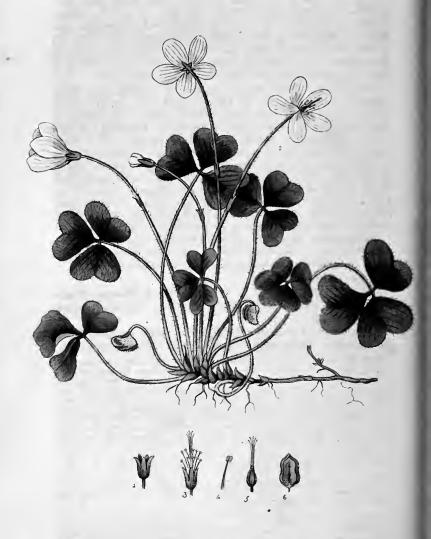
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Oxalis Acetosella Wood- Forred 4
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OX'ALIS*.

Linnean Cluss and Order. DECA'NDRIAT, PENTAGY'NIA.

Natural Order. Oxali'de.e, Dec. Prod. v. i. p. 689.—Lindl. Syn. p. 59.; Intr. to Nat. Syst. of Bot. p. 140.—Loud. Hort. Brit. p. 507.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 752.—Mack. Fl. Hib. p. 58.—Hook. Brit. Fl. (4th edit.) p. 402.—Geraniace.e, Rich. by Macgilliv. p. 474.—Gerania Affinia, Juss. Gen. Pl. p. 269.—Sm. Gram. of Bot. pp. 147 & 148.—Rosales; subord. Rhæados.e; sect. Gruin.e; type, Oxalidace.e; Burn. Outl. of Bot. v. ii. pp. 614, 784, 808, & 810.—Gruinales, Linn.

GEN. CHAR. Calyx (fig. 1.) inferior, of 1 sepal, in 5, deep, pointed, permanent segments. Corolla (fig. 2.) of 5, upright, blunt, rather oblique petals, much longer than the calyx; often united by the bases of their claws; spiral in the bud. Filaments (see figs. 3 & 4.) 10, hair-like, sometimes combined, upright, the 5 outermost shortest, and often protuberant at the back or summit. Anthers roundish, furrowed, incumbent. Germen (fig. 5.) superior, oblong or roundish, with 5 angles. Styles (fig. 5.) 5, thread-shaped, either longer or shorter than the longest stamens. Stigmas blunt, downy. Capsule (fig. 6.) with 5 angles, and 5 cells, membranous, bursting lengthwise at the angles. Seeds roundish, polished, with an elastic arillus, in some species soliary, in others several in each cell.

Distinguished from other genera in the same class and order, by the 5-cleft calyx; the corolla of 5 petals, often connected at the base; the angular, 5-celled capsule; and the tunicated seeds.

Two species British.

OX'ALIS ACETOSE'LLA. Sour Wood-sorrel. Common Wood-sorrel. Wood-sour. Sour Trefoil. Stubwort. Alleluja. Lujula. Cuckoo-bread ‡.

SPEC. CHAR. Leaves all radical, ternate; leaflets inversely heart-shaped, hairy. Scape single-flowered. Root of many scaly joints.

Engl. Bot. t. 762.—Curt. Fl. Lond, t. 111.—Woodv. Med. Bot. v. i. p. 56, t. 20.

—Jacq. Oxal. p. 114. t. 80, f. 1.—Linm. Sp. Pl. p. 620.—Huds, Fl. Angl. (2nd ed.)
p. 198.—Willd. Sp. Pl. v. ii. pt. 1, p. 780.—Sm. Fl. Brit. v. ii. p. 491.; Engl. Fl.
v. ii. p. 323.—Lindl. Syn. p. 59.—Hook. Brit. Fl. p. 211.—Macr. Mau. Brit. Bot.
p. 45.—Light. Fl. Scot. v. i. p. 237.—Sibth. Fl. Oxon. p. 144.—Abbot's Fl. Bedf.
p. 100,—Thornt. Fam. Herb. p. 461, with a figure.—Purt. Midl. Fl. v. i. p. 216.—
Davies' Welsh Bot. p. 43.—Relh. Fl. Cant. (3rd ed.) p. 182.—Hook. Fl. Scot. p.
141.—Grev. Fl. Edin. p. 101.—Fl. Devon. pp. 77 & 181.—Jolnst. Fl. of Berw. v. i.
p. 99.—Winch's Fl. of Northumbl. and Durh. p. 30.—Don's Gen. Syst. of Gard.
and Bot. v. i. p. 765.—Walker's Fl. Oxf. p. 127.—Trev. on Veg. Face Islands,
p. 8.—Bab. Fl. Bath. p. 11.—Dick. Fl. Abred. p. 38.—1rv. Loud. Fl. p. 173.—
Luxf. Reig. Fl. p. 40.—Cow. Fl. Faver. p. 40.—Mack. Catal. of Pl. 1rel. p. 45.;

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. Calyx, Stamens, and Pistils.—Fig. 4. A single Stamen.—Fig. 5. Germen, Styles, and Stigmas.—Fig. 6. Capsule.—All, except 2 and 6, a little larger than nature.

^{*} From oxus, Gr.; sharp or acid.

† See folio 37, note +.

[‡] This plant, says Genarde, is called by herbalists, Alleluja, and Cuckoo's Meat, because it springs forth and flowers with the singing of the cuckoo, at which time Alleluja also was wont to be sung in churches. The names Alleluja and Lujula are, however, corrupted from the Calabrian name Juliola. It is probably called Stubwort from its covering the ground among the stubs in coppices, when they are cut down. Don.

Fl. Hibern. 58.—Oxalis vulgaris, Gray's Nat. Arr. v. ii. p. 630.—Oxalis alba, Ray's Syn. p. *281.—Johnson's Gerarde, p. 1901.

LOCALITIES.—In woods, hedges, and among bushes on heaths, especially in shady places; common.

Perennial.—Flowers in April and May.

Root horizontal, scaly, white, or often of a bright red colour, branched, with many very fine fibres. Stem none. Leaves ternate, on long, slender, hairy, radical, purplish petioles; leaflets inversely heart-shaped, hairy, bright green above, often purplish beneath, drooping at night. Scape from 2 to 4 inches high, hairy, 1-flowered, with 2 small opposite bracteas, considerably below the flower. Flowers solitary, drooping, of a delicate white, beautifully veined with pink or purple; the petals adhering together by a little glandular swelling, at each side of their short yellow claws, which are inserted into the receptacle separate and distinct. Stamens and Styles hair-like. Capsule egg-oblong, blunt, 5-celled, 5-cornered, bursting longitudinally at the angles. Seeds 2, sometimes 3, in each cell, egg-shaped, compressed, blackish, shining; invested by a fleshy white arillus, at first smooth, and closed on every side, but at length opening elastically at the tip, and rolling back, wrinkles up and throws off the seed with considerable force.

It is said to vary with bluish and purple coloured flowers. See Ray's Syn. p. 281,; and Merrett's Pinax, p. 99. This variety is

smaller than the common one, and flowers later.

Oxalis Acetosella is a delicate and pretty plant, native of other parts of Europe, as well as of Britain; it is also found in Japan. Mr. Cuntus observes, that it continues to produce seeds during the greatest part of the Summer, without any appearance of expanded blossoms. As soon as the plant has done flowering, the scape bends down, but when the seed is ripe it again becomes upright. Linkarus remarks, that the flowers shut themselves up at the approach of rain; he says, that "even when the weather changes in a moment from sunshine to rain, though before expanded, they immediately close." The leaves are powerfully and gratefully acid, making a refreshing and wholesome conserve with fine sugar. Boiled with milk, they make an agreeable whey, which may be used in inflammatory diseases, in which vegetable acids are beneficial. They also afford the "essential Salt of Lemons," used to take iron-moulds out of linen.

Some Botanists are of opinion that this was the ancient shamrock of Ireland, as old authors say it was a sour indigenous plant, showing itself on St. Patrick's

day, and was eaten.

The Natural Order, Oxalidele, is composed of dicotyledonous herbaceous plants or under shrubs, with alternate, compound, or sometimes simple, leaves. Their calyx is formed of 5 equal, permanent sepals, which are often united at the base. The corolla consists of 5, hypogynous, equal, unguiculate petals, which are twisted in the bud. The stamens are 10, and arc frequently more or less combined, those opposite the petals longer than the others, and forming an inner series; their anthers 2-celled, and innate. The ovary is free, with 5 angles, 5 cells, and 5 thread-shaped styles, with capitate or somewhat bifid stigmas. The fruit is a membranous capsule, of 5 cells, with from 5 to 10 valves, opening longitudinally at the angles. The seeds, which are few, are attached to the axis, and enclosed within a fleshy arillus, which curls back at the maturity of the fruit, and expels the seeds with elasticity. The albumen is between cartilaginous and fleshy; the embryo inverted, with a long superior radicle, and foliaceous cotyledons.





C. Mathems, N. 2 Se. Put by W. Barter. Betanic Cardon. Oxford. 2639.

A'NTHEMIS*.

Linnean Class and Order. SYGENE'SIA†, POLYGA'MIA, SUPE'R-FLUA‡.

Natural Order. Compo'sitæ§, tribe, Corymbi'feræ||, Juss—Lindl. Syn. pp. 140 & 142.; Introd. to Nat. Syst. of Bot. pp. 197 and 199.—Mack. Fl. Hibern. p. 142.—Hook. Brit. Fl. (4th ed.) p. 410.—Compo'sitæ; subord. Anthemi'deæ, Loud. Hort. Brit. pp. 520 & 522.—Synanthe'reæ; tribe, Corymbi'feræ, Rich. by Macgilliv. pp. 454 & 455.—Corymbiferæ, sect 5. Juss. Gen. Pl. pp. 177 & 185.—Sm. Gram. of Bot. p. 121 & 124; Engl. Fl. v. iii. p. 334.—Syringales; subord. Asterosæ; sect. Asterinæ; subsect. Asterianæ; type, Asteraceæ; Burn. Outl. of Bot. pp. 900, 901, 920, 924, & 926.—Compo'sitæ, Linn.

GEN. CHAR. Involucrum (common calyx) (fig. 1.) hemispherical, scales nearly equal, closely imbricated, membranous at their margins. Corolla (fig. 2.) compound, radiant; florets of the disk numerous, perfect, tubular, with 5 equal spreading segments (see fig. 4.); florets of the ray numerous, strap-shaped, spreading, abrupt, generally with 3 teeth (see fig. 5). Filaments in the tubular florets only, very short, hair-like (see fig. 6). Anthers (see fig. 6.) in a cylindrical tube. Germen (see figs. 4 & 6.) in all the florets inversely egg-shaped. Style (see fig. 6.) thread-shaped, not prominent. Stigmas spreading, oblong, simple or divided. Seedvessel none but the unaltered calyx. Seed (fig. 8.) in all the florets inversely egg-shaped, rather compressed, generally with a slight border, or crown. Receptacle (fig. 7.) more or less convex, or conical, beset with spear-shaped, pointed, chaffy scales, one to each tubular floret, and generally about the same height.

The hemispherical involucrum, with closely imbricated, nearly equal scales, membranous at the margin; the numerous, oblong florets of the ray; the convex, chafty receptacle; and the seed usually crowned with a slight border; will distinguish this from other genera in the same class and order.

Five species British.

'A'NTHEMIS CO'TULA. Stinking Chamomile. Stinking Mayweed. Mather.

SPEC. CHAR. Leaves doubly pinnatified, slightly hairy; segments awl-shaped, spreading. Receptacle conicle; scales bristle-shaped. Seeds without any border.

Fig. 1. Involucrum.—Fig. 2. Corolla.—Fig. 3. Vertical Section of the Disk, showing the Receptacle, with its Florets and Scales.—Fig. 4. A Floret of the Disk.—Fig. 5. A Floret of the Ray.—Fig. 6. Stamens and Pistil.—Fig. 7. Receptacle.—Fig. 8. Seed.—Figs. 4 & 8, magnified.

^{*} From anthemon, Gr. a flower; from the profusion of its blossoms. Hooken.

⁺ See folio 91, note +.

[‡] See folio 36, note ‡.

[§] See folio 27, a.

^{||} See folio 36, a.

Engl. Bot. t. 1772.—Curl. Fl. Lond. t. 329.—Linn. Sp. Pl. p. 1261.—Huds. Fl. Angl. (2nd ed.) p. 373. —Willd. Sp. Pl. v. iii. pl. 111. p. 2181.—Sm. Fl. Brit. v. ii. p. 906.; Engl. Fl. v. iii. p. 458.—Will. (7th ed.) v. iii. p. 954.—Hook. Brit. Fl. p. 367.—Lightl. Fl. Scot. v. i. p. 495.—Siblib. Fl. Oxon. p. 259.—Abb. Fl. Bedft. p. 186.— Davies' Welsb. Bot. p. 81.—Purt. Midl. Fl. v. ii. p. 397.—Relh. Fl. Cant. (3rd edit.) p. 351.—Hook. Fl. Scot. p. 247.—Grev. Fl. Edin. p. 182.—Fl. Devon. pp. 141 & 161.—Winch's Fl. of Northumb. and Durb. p. 55.—Walker's Fl. of Oxf. p. 248.—Irv. Lond. Fl. p. 154.—Cow. Fl. of E. Kenl, p. 21.—Mack. Catal. Pl. Irel. p. 75.; Fl. Hibern. p. 152.—Maruta fætida, Gray's Na1. Arr. v. ii. p. 456.—Lindl. Syn. p. 150.—Macr. Man. Brit. Bot. p. 129.—Bab. Fl. Bath. p. 26.—Chamæmelum fætidum, Ray's Syn. p. 185.—Cotula fætida, Johnson's Gerarde, p. 757.

LOCALITIES.—In waste places, corn-fields, dunghills, and by road-sides; common.

Annual.—Flowers in June, July, and August.

Root tapering, with branched fibres. Stem upright, from 1 to 2 feet high, branched, leafy, angular and furrowed, smooth, solid. Leaves alternate, sessile, bright green, smooth, or slightly hairy, doubly pinnatifid, and cut; the segments narrow, flat, a little succulent, spreading and rather distant, not crowded or parallel, somewhat bristle-pointed. Flowers solitary, on upright, terminal. finely grooved, slightly downy stalks. Involucrum (fig. 1.) more or less hairy, its scales nearly equal, blunt, pale green, their margins brown, scarcely membranous. Disk (fig. 3.) convex, its florets (fig. 4.) lemon-coloured, rather longer, when expanding, than the slender bristle-shaped, or awl-shaped, greenish scales at their base (see fig. 3). Florets of the ray (fig. 5.) white, elliptical, 3-toothed, bent back close to the stalk at night, and continuing in that state till morning. Seeds (fig. 8.) inversely egg-shaped, bluntly 4-cornered, brown, wrinkled, or sometimes rough with minute tubercles, without any border or crown, but terminated by a simple pore. Receptacle (fig. 7.) nearly cylindrical, beset on the upper part, with slender, permanent, chaff-like scales.

The florets of the ray have been observed to vary much in length and breadth, and it has sometimes been found with all the florets strap-shaped.

The whole plant has a fetid smell, and is said to blister the hands of the reapers, or of others who may happen to gather it. If it be examined with a microscope, it will be found to be sprinkled all over with little glands, in which the acrid matter most probably resides. It is a strong and active bitter: a decoction given in the dose of a tea-cup full, will produce copious vomiting and perspiration; and powerfully promotes the action of an emetic. Its reputed efficacy in rheumatism is owing to its sudorific effect.

Toads are said to be partial to this plant; but it is very ungrateful and displeasing to bees. According to the observations of LINNÆUS, goats and sheep are not fond of it; horses, cows, and swine refuse it.

It is one of those troublesome weeds which sometimes over-run cornfields to that degree, as greatly to diminish the crop; it ought, therefore, to be extirpated with great diligence. See Curt. Fl. Lond., and With. Bot. Arr.

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Full by W. Baxter, Botanie Garden Oxford 1839.

W.Willia.Sc

MEDICA'GO *.

Linnean Cluss and Order. DIADE'LPHIA +, DECA'NDRIA.

Natural Order. LEGUMINO'SÆ, Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Macgilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259 .- Loud. Hort. Brit. p. 509 .- Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—Legumina'ceæ, Loud. Arb. Brit. p. 561.—Papiliona'ceæ‡, Linn.—Rosales; sect. Cicerinæ; subsect. LOTIANÆ; type, LOTACEÆ; subtype, LOTIDÆ; Burn. Outl. of Bot. pp. 614, 638, 642, & 644.

GEN. CHAR. Calyx (fig. 1.) inferior, of 1 sepal, somewhat cylindrical, with 5 straight, pointed, nearly equal teeth, permanent, unchanged. Corolla (fig. 2.) of 5 petals, deciduous; standard (fig. 3.) egg-shaped, ascending, undivided, with a short broad claw; wings (fig. 4.) obovate, cohering by their lower edges; keel (fig. 5.) of 2 combined petals with separate claws, oblong, blunt, depressed by the swelling germen, and finally spreading widely from the standard. Filaments (fig. 6.) 10; 9 united almost to their summits into one split compressed tube; the tenth hair-like, distinct. Anthers small, roundish. Germen stalked, oblong, compressed, incurved or spiral, enfolded by the filaments, starting elastically from the keel, and forcing back the standard, terminating in a short, awl-shaped, straight, ascending style. Stigma terminal, minute, simple. Legume (fig. 8.) compressed, inflexed, falcate, or spirally twisted, of 1 cell, and 2 valves. Seeds (fig. 9.) several, often numerous, kidney-shaped, smooth.

Distinguished from other genera in the same class and order,

by the falcate or spirally twisted Legume.

Seven species British.

MEDICA'GO SATI'VA. Cultivated Medick. Purple Lucerne. Burgundy Trefoil. Horned Clover.

SPEC. CHAR. Stem upright, smooth. Leaflets oblong, toothed. Clusters upright. Legumes smooth, slightly spirally twisted.

Engl. Bot. t. 1749.—Mart. Fl. Rust. t. 48.—Linu. Sp. Pl. p. 1096.—Huds. Fl. Angl. (2nd ed.) p. 330.—Willd. Sp. Pl. v. iii. pt. 11. p. 1404.—Sm. Fl. Brit. v. ii. p. 795. ; Engl. Fl. v. iii. p. 317.—With. (7th ed.) v. iii. p. 865.—Gray's Nat. Arr. v. ii. p. 604.—Lindl. Syn. p. 82. Hook. Brit. Fl. p. 333.—Macr. Man. Br. Bot. p. 52.—Abb. Fl. Bedf. p. 164.—Dickson's Pract. Agricul. v. ii. p. 875. t. 20.—Davies' Welsh Bot. p. 72.—Purt. Midl. Fl. v. i. p. 347.—Hook. Fl. Scot. p. 220.—Lohnst Fl. of Berw. v. i. p. 165.—Wingh. El. of Northungh. and Link p. 49.— Johnst Fl. of Berw. v. i. p. 165.—Winch. Fl. of Northumbl. and Durb. p. 49.—
Loud. Encycl. of Agricul. (2nd ed.) p. 877. parag. 5574, with a figure.—Baxt. Lib.
of Agricul. and Horticul. Knowl. (2nd ed.) p. 418.—Don's Gen. Syst. of Gard. and
Bot. v. ii. p. 168.—Walker's Fl. of Oxf. p. 216.—Perry's Pl. Varvic. Selectæ, p.
63.—Bab. Bl. Bath. p. 12.—Irv. Loud. Fl. p. 179.—Luxf. Reig. Fl. p. 65.—Mack.
Catal. Pl. Irel. p. 68.; Fl. Hibern. p. 80.—Trifolium Burgundacum, Johns.
Gerarde, p. 1189.

LOCALITIES.—In meadows, pastures, hedges, ditch-banks, and the borders of fields, in dry calcarious soils, but scarcely a native.—Bedfordsh. Pastures, com-

Fig. 1.—Calyx.—Fig. 2. A separate Flower.—Fig. 3. Standard.—Fig. 4. One of the Wings.—Fig. 5. The Keel.—Fig. 6. Stamens.—Fig. 7. Style.—Fig. 8. Legume.—Fig. 9. Seeds.

So called by Tournefort from Medica, the more proper name of the plant. (medike of Dioscoriors,) it having been originally introduced into Greece by the MEDES, in the time of DARIUS HYDASPES. WITHERING.

[†] Scc folio 77, note +. # Sec folio 117, note #.

Man: Rev. C. Abbot.—Cumberland; Fields near Whitehaven: Mr. Watson, in N. B. G.—Dovon; Hedge-bank by the road-side, just over New Bridge from Barnstable; and in a field near the old elm at Newport: ibid.—Durham; Near Silksworth; and on the Ballast-hills of Tyne and Wear: N. J. Winch, Esq. At Croft: Rev. J. Symmons. Field near Marsden, probably introduced: R. B. Bowman, in N. B. G.—Kent; Meadows, originally cultivated: Fl. Ton. Near Rochester: N. J. Winch, Esq. in N. B. G. Charlton Chalk-pit: Fl. Metr. Gravel-hill, between Swanscomb and Northfleet: ibid.—Leicestersh. Near Lutterworth, rare: Rev. A. Bloxan: ibid.—Norfolk; About Norwich, in several places: G. Cooper, in N. B. G.—Northumberland; On the Bllast-hills of Tyne; in a field above the quarry at Sunnyside, about a mile S. of Berwick: Dr. Thompson. Near Gun's Green Hill: Rev. A. Baird.—Notts; Mansfield and Hoverington (Ordoyno); in a plantation on Sutton Forest: Dr. Howitt, in N. B. G.—Somersetshire; Naturalised on the Burnham Sand-hills: J. C. Collins, in N. B. G. In many places near Bath: C. C. Barnsgion, Esq.—Surrey; Behind Juniper Hill: N. J. Winch, Esq. in New Bot. Guide. About Croydon; fields between Hammersmith Bridge and Kew; and in Dorking Chalk-pit: Fl. Metr. Near Reigate: Mr. G. Lux-rord.—Warwicksh. Grafton: T. Purton, Esq.—Wilts; Near Great Bedwin: W. Bartlett, Esq.—Worcestersh. Cleve: T. Purton, Esq.—Yorksh. Leeds: H. Denny, Esq. in N. B. G.—Porfarsh. Near Dundee: Mr. G. Don.—Lanarksh. Meadows and pastures, occasionally; about Glasgow, but not indigenous: Hook. Fl. Scot.—Linlithgowsh. Banks of the Union Canal, ten miles from Edinburgh: R Maughan, in N. B. G.—1RELAND. Near Coolum, Waterford: Right Honourable the Countess of Carrick. Plentiful at Portmarnock in sandy fields: Mr. J. T. Mackay.

Perennial.—Flowers in June and July.

Root somewhat woody. Stems from 1 to 3 feet high, uprightor somewhat reclining, branched, leafy, roundish, striated, smooth, or sometimes hairy, especially when in a young state. Leaves alternate, ternate, on shortish petioles, accompanied at their base by a pair of spear-shaped, or half harrow-shaped, pointed, sometimes toothed, stipulas. Leaftets oblong, inclining to wedge-shaped, more or less pointed, entire at the base, serrated upwards, the midrib lengthened into a thorn-like point, clothed with silky hairs on both sides, but especially beneath. Clusters (racemes) upright, of many bluish-purple flowers, each on a short partial stalk, with a small bristle-shaped bractea at its base. Legume (fig. 8.) twisted spirally, with 2 or 3 distant turns, silky while young. Seeds several, flattish.

This species, which is now become naturalised in many parts of Britain, was, we are informed by Miller, introduced into this country from France, about the year 1650. It is said to be the Medica of Virgil, Columella, Pallatorus, and other ancient writers on Husbandry, who have extolled it as an excellent fodder for cattle, and have given directions for the cultivation of it in those countries where they lived. Its cultivation has also been strongly recommended by modern agricultural writers, for the purpose of feeding cattle, but it is not yet generally adopted. It requires a deep rich soil, and, in such, will continue to flourish many years, if kept free from weeds. It will yield a heavy crop of green food by the first of May, with three other cuttings during the Summer, and is said to be much superior to clover (see t. 283.) as food for cows, not only increasing the quantity of milk and its richness in cream, but also the quality of the butter. It is also advantageously given to horses, and pigs are said to devour it greedily. As a dry fodder, it is capable of affording much assistance, and, as an early food for ewes and lambs, may be of great value in particular cases. Care must be taken that too much he not given in its green state, or, like clover, cattle may be hoven or blown with it. It is said to make good hay, if cut at a proper season, which is immediately after it comes into blossom, and being a plant of early growth it will be ready for that purpose before sainfoin or clover; and if made well, will be preferred by horses, sheep, and neat cattle, to any other food. See Baxt. Lib. of Agric & Hort. Knowl.; & Loud. Ency. of Agricul.

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A'CORUS *.

Linnean Class and Order. HENA'NDRIAT, MONOGY'NIA.

Natural Order. Aroi'dex, Juss. Gen. Pl. p. 23.—Sm. Gram. of Bot. p. 67.—Lindl. Syn. p. 246.; Introd. to Nat. Syst. of Bot. p. 286.—Rich. by Macgilliv. p. 388.—Loud. Hort. Brit. p. 541.—Mack. Fl. Hibern. p. 261.—Hook. Brit. Fl. (4th edit.) p. 422.—Juncales; sect. Acorinæ; type, Orontiaceæ; Burn. Outl. of Bot. v. i. pp. 403, 403, & 409.—Piperitæ, Linn.

GEN. CHAR. Calyx none. Spadix naked, nearly cylindrical, simple, covered with sessile flowers, deciduous. Corolla (Perianthium) (fig. 1.) inferior, of 6, equal, blunt, concave, lax, petals, which are rather thicker in the upper part; and protuberant at the back. Filaments (see fig. 1.) 6, thickish, upright, about the length of the petals, and alternate with them. Anthers terminal, of 2 roundish lobes. Germen superior, sessile, elliptic-oblong, the length of the stamens. Style none. Stigma hemispherical, obscurely 3-lobed. Capsule (figs. 2 & 3.) triangular, abrupt, membranous, of 3 cells, not bursting. Seeds several, egg-oblong.

The spadix covered with numerous sessile flowers; the naked, inferior corolla, of 6 blunt petals; the sessile stigma; and the indehiscent, many-seeded capsule; will distinguish this from other

genera in the same class and order.

One species British.

A'CORUS CA'LAMUS. Common Sweet Flag. Sweet Rush. Myrtle Flag. Calamus Aromaticus.

SPEC. CHAR. Leafy summit of the scape rising high above the spadix.

Engl. Bot. t. 356.—Woodv. Mcd. Bot. v. iii, p. 472. t. 173.—Linn. Sp. Pl. p. 462.—Huds. Fl. Angl. (2nd edit.) p. 147.—Willd. Sp. Pl. v. ii, pt. 1, p. 199.—Sm. Fl. Brit. v. i. p. 373.; Engl. Fl. v. ii, p. 157.—With. (7th edit.) v. ii, p. 436.—Lindl. Syn. p. 246.—Hook. Brit. Fl. p. 159.—Macr. Man. Brit. Bot. p. 243.—Leers' Fl. Herb. (2nd edit.) p. 87. t. 13. f. 12.—Sibth. Fl. Oxon. p. 112.—Abb. Pl. Bedf. p. 77.—Thorn. Fam. Herb. p. 353, with a figure.—Relli. Fl. Cant. (3rd ed.) p. 141.—Purt. Midl. Fl. v. iii, p. 31.—Fl. Devoñ. p. 59.—Walker's Fl. of Oxf. p. 95.—Perry's Pl. Varv. Selectæ, p. 31.—Bab. Fl. Bath. p. 52.—Irv. Lond. Fl. p. 87.—Acorus undulatus, Gray's Nat. Arr. v. ii. p. 159.—Acorus verus sive Calamus officinarum, Ray's Syn. p. 437.—Warn. Pl. Woodf. p. 2.—Acorus verus officinis falso Calamus, Johnson's Gerarde, p. 62.

Localities.—In watery places, about the banks of rivers, and in watery ditches; not common.—Oxfordsh. Near Dorchester: Dr. Sibthorp. Plentiful at the further end of Long Meadow, near the footpath going from Oxford to Helley, 1838: W. B.—Berks; Banks of the Isis between Iffley and Sandford: W. B.—Bedfordsh. Moat, at the Hassocks Farm. Cambridgesh. In the ditch opposite the great gates of Trinity College Walks. In a ditch by Great Founder's Closes, near the House in the Fields. In marshy ground at Chesterton, below the Ferry; nearly opposite Fen Ditton; and above Bat's-bight Shitice.—Cheshire; In the river Dee, but rare; at Holford, near Northwich, plentifully.—Derbysh. Cutthorpe, near Chesterfield.—Devon; New Cut near Exeter; Hain Banks.

* From a, Gr. without; and korion, Gr. or kore, Gr. the pupil of the eye, diseases of which it was supposed to remove. + See folio 33.

Fig. 1. A separate Flower,—Figs. 2 and 3. Capsules; from GERTNER,—All magnified.

Exeter; and about Biddeford.—Dorset; In the river Stour, in two or three places between Blandford and Sturminster Newton.—Essex; "On the sides of some ponds on the hill near Mr. Wannen's piece of water, opposite Harts, his house at Woodford Row; and in the river Rhodon, near Woodford Bridge, opposite the Rth mile-stoue; but in general not very common." In a pond at Deux Hall, Lamburn; and in a lane between Chigwell and Henhault Forest.—Herts; Ponds near Mill-hill and Totteridge.—Lancash. In a field at Longford Bridge, near Warrington.—Leicestersh. Near the Abbey at Leicester, sparingly. In the Soar above Loughborough and Kegworth, in divers places, especially about Normanton; and between Zouch Mills and Loughborough.—Middlesex; On Hampstead Heath. By the Thames at Hampton, abundantly. On Hillington Common; Hounslow Heath; and near Harefield.—Norfolk; Abundantly by the sides of the Yare near Norwich, and other rivers in Norfolk. Sides of the river at Readham, and thence to Norwich.—Notts; In many places on the banks of the Trent, from Barton to Colwick; banks of the Erewash, near Eastwood; and in Papplewick Forest.—Shropsh. In the Lodge Lake, Tong.—Somersetsh. Marches near Glastonbury; Near the late Mr. Sole's garden, Bath; River-bank below Norfolk Crescen; Old turf-pits near Wadmore; and plentiful in King's Sedgemoor.—Suffolk; River-side below Halesworth; By the Waveney between Beccles and Gillingham, and in other places. Ditches near the river at Belton, plentifully; and in a ditch at Burgh Castle.—Surrey; About Hedley; by the Thames at Walton, and Hampton; Coulsdon; Putney Heath, in ponds, possibly planted; rivulet between Wimbledon and Richmond Park, abundant; and between Putney and Kingston.—Sussex; In a pond on Duncton Common.—Warwicksh. In the river at the bottom of Mr. Oldensurw's garden at Tamworth.—Worcestersh. In the Avon, near Pershore, and at Hanley.—Yorksh. Potteric Car, near Doncaster; Ponds at Risby; near Beverly; banks of the river near Househam, the seat of Mr. Cholmley; and near York-ScOTLAND.

Perennial.—Flowers in June.

Root thick, rather spongy, with many long fibres, powerfully aromatic. Leaves upright, sword-shaped, 2 or 3 feet high, bright green, near an inch broad, sheathing one another, and usually waved on one side; the midrib nearest the outer margin. Scape similar to the leaves, except being thicker below the spadix, and not quite so tall. Spadix proceeding from the edge of the scape, 2 or 3 inches long, tapering, closely studded with numerous, small, pale green flowers, set in spiral lines. Petals membranous, concave, appearing truncated. Capsule oblong, triangular, of 3 cells, containing numerous oval seeds.

This is said to be our only indigenous plant which is at the same time both aromatic and bitter. It contains a considerable quantity of essential oil, that imparts the delightful fragrance for which it is peculiar, to the farinaceous substance abounding in its enlarged rhizoma (root-stock). Professor Burnett, in his very interesting Outlines of Botany, v. i. p. 410, informs us, that it is consumed in great quantities by perfumers and the makers of hair-powder; and that in the neighbourhood of London, it has been almost wholly destroyed by their continual maraudings. The dried root powdered, is used by the country people in Norfolk, for curing the ague; and the fresh root candid is said to be employed at Constantinople as a preservative against epidemic diseases. The leaves have a sweet fragrant smell, more agreeable, though weaker, than that of the roots; this has recommended them for garlands, and for strewing on the floor of the Cathedral at Norwich, and some of the streets, on the Mayor's day, in June.

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Tagus sylvatica. Common Beech h IRussell. Del. Publog W. Banter Botamic Gerden adered 1839. W Millio Sc

FA'GUS*.

Linnean Class and Order. Monce'ciat, Polya'ndria.

Natural Order. Cupuli'fer.*, Richard.—Lindl. Syn. p. 239; Introd. to Nat. Syst. of Bot. p. 97.—Rich. by Macgilliv. p. 545.—Amenta'ce., Linn.—Juss. Gen. Pl. p. 407.—Sm. Gram. of Bot. p. 189.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 242.—Hook. Brit. Fl. (4th ed.) p. 419.—Querneales; sect. Quercinæ; type, Corylace.; Burn. Outl. of Bot. v. ii. pp. 523 & 531.

GEN. CHAR. Barren Flowers (figs. 1 & 2.) in a globose cathin. Calyx (figs. 2 & 3.) of 1 sepal, bell-shaped, in 5 or 6 segments. Corolla none. Filaments (see figs. 2 & 3.) from 5 to 12, or more, hair-like, longer than the calyx. Anthers roundish, or oblong, of 2 lobes. Fertile Flowers (figs. 4 & 5.) 2 or 3 together, within a 4-lobed, prickly involucrum (outer calyx of SM.) (see figs. 5 to 8). Calyx (inner calyx of SM.) (see figs. 5 & 9.) single, of 5 or 6 minute lobes, which are downy internally. Germen (fig. 6.) incorporated with the calyx, triangular, 3-celled. Styles (see figs. 6 & 9.) 3. Nuts (fig. 10.) invested with the enlarged involucrum. (fig. 8.) upright, 3-angled, crowned at the tip (see fig. 9.) with the hairy lobes of the calyx, by abortion, 1-celled; and 1- or 2-seeded.

The barren flowers in a close capitate cathin, each of a monosepalous, bell-shaped, 5- or 6-lobed calyx, with from 5 to 12 stamens; the fertile flowers 2 together, in a 4-lobed, prickly involucrum, each with a 5- or 6-lobed, downy calyx, adnate to the germen; the 3 stigmas; and the 3-angled, 1-celled, 1- or 2-seeded nut; will distinguish this from other genera in the same class and order.

One species British.

FA'GUS SYLVA'TICA. Wood Beech. Common Beech.

SPEC. CHAR. Leaves egg-shaped, smooth, obsoletely serrated, their margins fringed.

Engl. Bot. t. 1846.—Hunt. Evel. Silva, p. 136, with a plate.—Lond. Arbor. et Frutic. Brit. p. 1950. t. 283.—Linn. Sp. Pl. p. 1416.—Huds. Fl. Angl. (2nd ed.) p. 422.—Willd. Sp. Pl. v. iv, pt. 1. p. 459.—Sm. Fl. Brit. v. iii. p. 1028.; Engl. Fl. v. iv. p. 152.—Willd. (7th ed.) v. ii. p. 576.—Gray's Nat. Arr. v. ii. p. 248.—Lyndl. Svn. p. 239.—Hook. Brit. Fl. p. 408.—Macr. Man. Brit. Bot. p. 216.—Lightf. Fl. Scot. v. ii. p. 584.—Sibth. Fl. Oxon. p. 152.—Abb. Fl. Bedf. p. 210.—Davies' Welsh Bot. p. 90.—Purt. Midl. Fl. v. ii. p. 461.—Relh. Fl. Cant. (3rd. edit.) p. 395.—Hook. Fl. Scot. p. 274.—Grev. Fl. Edin. p. 203.—Sylvan. Sketches, p. 38.—Fl. Devon. pp. 155 & 133.—Johnst. Fl. Berw. v. i. p. 207.—Winch's Fl. of Northumb. and Durhan, p. 62.—Walker's Fl. of Oxf. p. 283.—Bab. Fl. Bath. p. 46.—Dick. Fl. Abred. p. 56.—Irv. Lond. Fl. p. 114.—Luxf. Reig. Fl p. 82.—Mack. Catal. Pl. Irel. p. 83.; Fl. Hibern. p. 255.—Fagus, Ray's Syn. p. 439.—Johnson's Gerarde. p. 1444.—Beech, Phil. Pom. Brit. (2nd ed.) p. 64.

Fig. 1. Barren-flowered Catkin.—Figs. 2 & 3. Barren Flowers.—Fig. 4. Fertile-flowered Catkin.—Figs. 5 & 6. Fertile Flowers.—Fig. 7. The Involucrum — Fig. 8. The same when the fruit is ripe.—Fig. 9. A Nut in an unripe state.—Fig. 10. The same when ripe.

^{*} Phagos, in Greek, from Phago, Gr. to eat; on account of the nutritive qualities of the fruit.

† See folio 83, note +.

LOCALITIES.—In woods, especially on a chalky soil. Abundant in forests in the South of England; yet Casan asserts there was, at the time of his invasion, no Beech-timber in Britain. It is scattely wild in Scotland, or Ireland.

Tree.-Flowers in April and May.

From 50 to 80, or even 100, feet high, when full grown. Bark smooth, entire, and of a greyish or whitish colour when fully exposed to the air. Branches numerous, generally upright, though in old trees, the lower ones are often horizontal, and sometimes bent down in the middle, and curved towards the extremity. Leaves alternate, egg-shaped, shining, thin, waved, scarcely serrated, finely fringed, changing to a brown or russet colour in the Autumn. Barren Flowers 3 or 4 together, in round, stalked, drooping heads, or catkins (fig. 1.), of a light brown colour. Fertile Flowers above them, solitary, on shorter and stouter stalks than the barren-flowered catkins. Involucrum (see figs. 5 & 7.) 4-cleft, clothed with simple pliant prickles. Stigmas, 3 in each flower, spreading, acute, and downy. Nuts (figs. 9 & 10.) 2, with 3 equal, very sharp angles, and crowned with the calvx (see fig. 9). The involucrum (outer calyx of SMITH), (fig. 8.), which enlarges and becomes very hard and woody, encloses the nuts till they are ripe. when it opens at the summit, in 4 divisions; and after a short time, the nuts drop out, leaving the involucrum (fig. 8.), which contained them, attached to the tree. Seedlings of this tree, when newly sprung up, have a pair of large blunt cotyledons, about three quarters of an inch long, and an inch and a quarter wide; in this state they very much resemble small plants of the common twayblade (Listera ovata).

The Beech is one of the handsomest of our native forest-trees, vieing with the Oak in magnificence and beauty. It is a native of the temperate parts of Europe, from the South of Norway to the Mediterranean Sea, and from England to Constautinople. It is also found in Palestine, Asia Minor, Armenia, and Mazanderan.

In actual utility the Beech follows next to the Oak and the Ash, exceeding the latter in dimensions. It is as necessary to the cabinet-maker and turner, as the Oak is to the ship-builder, or the Ash to the plough and eart-wright. The nuts of the Beech, when eaten in great quantities, occasion head-ache and giddiness; nevertheless, when ground into meal, they make a wholesome bread. They are sometimes roasted and substituted for coffee. In Britain, the only use, at present, made of these nuts (or beech must) is by turning swine, deer, and poultry, into beech woods, to pick them up; but in France, they form a most insportant article of domestic consumption, for making oil, which is considered not only excellent for burning in lamps, but also for cooking, and especially for frying fish. The leaves gathered in Autumn, before they are much injured by the frosts, make infinitely better matrasses than straw or chaff, and endure for 7 or 8 years. The catkins of the barren flowers, after they fall from the tree, are, in some places, gathered, dried, and laid up for packing fruit in, which is to be sent to a distance. -- For a most complete, and very interesting history, &c. of this tree, illustrated with no less than 40 beautifully executed wood engravings, see Mr. Loudon's Arbor. et Fruct. Brit. pp. 1950 to 1980.

Erineum fagineum, GREV, grows on the under side of the leaves of some of the beech trees near Shotover Plantations, near Oxford; and the heautiful moss, Bryum Lyulutum, produces its fractification abundantly, on dry banks, under their shade, just after catering the carriage-road to Mr. Schutz's from the top of the hill.

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igitaria sanguinalis. Hairy Jinger

DIGITA'RIA *.

Linnean Class and Order. TRIA'NDRIAT, DIGY'NIA.

Natural Order. Grami'neæ, Juss. Gen. Pl. p. 28.—Sm. Gram. of Bot. p. 86.; Engl. Fl. v. i. p. 71.—Lindl. Syn. p. 293.; Introd. to Nat. Syst. of Bot. p. 292.—Rich. by Macgilliv. p. 393.—Loud. Hort. Brit. p. 542.—Mack. Fl. Hibern. p. 294.—Hook. Brit. Fl. (4th ed.) p. 426.—Gramina, Linn.—Graminales; sect. Triticinæ; type, Spartinaceæ; Burn. Outl. of Bot. v. i. pp. 362 and 366.

GEN. CHAR. Spikes somewhat fascicled. Spikelets (see fig. 1) unilateral. Calyx (see figs. 1 & 2.) single-flowered, of 3 very unequal, close-pressed, awnless glumes, the lower very small, sometimes wanting; the next largest, as long as the corolla, concave, ribbed; the third innermost, opposite to the latter, hardly one-fourth its size, spear-shaped, flattish, slightly ribbed. Corolla (figs. 1 & 3.) of 2 unequal, elliptical, awnless palex, the outer one convex, embracing the flattened inner one. Filaments (see fig. 3.) 3, hair-like, rather longer than the glumes. Anthers short, cloven at each end. Germen (fig. 4.) egg-shaped. Styles (fig. 4.) thread-shaped, about as long as the stamens. Stigmas short, feathery, dense. Seed (fig. 5.) egg-shaped, coated by the hardened polished corolla.

Distinguished from other genera, in the same class and order, by the somewhat fascicled spikes; the unilateral spikelets; the 1-flowered calyx, of 2 or 3 very unequal, close-pressed, awnless glumes, the outer one very small; by the corolla of 2 awnless palex, of which the outer one is convex, and embraces the flattened inner one; and by the seed coated by the hardened palex.

Two species British.

DIGITA'RIA SANGUINA'LIS. Bloody Finger-grass. Hairy Cock's-foot.

SPEC. CHAR. Leaves and sheaths hairy. Florets oblong, smooth, their margins rough.

Scop. Fl. Carn. v. i. p. 52.—Sm. Engl. Fl. v. i. p. 96.—Gray's Nat. Arr. v. ii. p. 155.—Lindl. Syn. p. 299.—Hook. Bitt. Fl. p. 56.—Winch's Fl. of Northumb. and Durb. p. 5.—Dick. Fl. Abred. p. 25.—Irv. Lond. Fl. p. 223.—Panicum sanguinale, Engl. Bot. t. 849.—Curt. Fl. Lond. t. 242.—Knapp's Gram. Brit. t. 12.—Schreb. Besch. der Gräser, v. i. p. 119. t. 16.—Mart. Fl. Rust. t. 78.—Graves' Brit. Grass. t. 13.—Linn. Sp. Pl. p. 84.—Huds. Fl. Angl. (2nd edit.) p. 25.—Willd. Sp. Pl. v. i. pt. 19. 342.—Leers' Fl. Herb. p. 14. t. 2. f. 6.—Sm. Fl. Brit. v. i. p. 66.—With. (7th edit.) v. ii. p. 144.—Macr. Man. Brit. Bot. p. 261.—Hook. Fl. Sot. p. 21.—Syntherisma vulgare, Schred. Fl. Germ. v. i. p. 161.—Gramen Dactylon latiore folio, Ray's Syn. p. 399.—Ischæmon vulgare, Johnson's Gerarde, p. 27.

Fig. 1. Two of the Spikelets, with their cloven stalk, attached to the rachis.—Fig. 2. The Glumes of the Calyx.—Fig. 3. The Corolla, Stamens, and Pistils.—Fig. 4. Germen and Pistils.—Fig. 5. A Seed.—All, more or less, magnified.

^{*} From digitus, a finger.

Localities.—In sandy cultivated fields; very rare.—Durham; On Sunderland Ballast-hills: W. Weichell.'s Herbarium.—Norfolk; In pastures at Great Witchingham, seven miles from Norwich, towards Lynn: T. Willisell., in Ray's Syn. Found in the same place since, by Mr. Woodwards. In sandy fields between Brandon and Moundeford: Rev. J. Lightfoot.—Suffolk; Plentifully in the ploughed fields about Elden: T. Willisell., in Ray's Syn. 1690. In fields opposite the Ferry at Woodbridge, not far from the river, sometimes in great plenty: Rev. G. Chabbe. At Henham: Smith's Engl. Fl.—Surrey; About Battersea; and about Martha's Chapel, near Guildford: Hudson. In Battersea Fields: Mr. J. Macnab, in N. B. G. Weybridge: W. Borner, Esq. ibid.

Annual.—Flowers in July and August.

Root fibrous. Culms several from one root, bent and decumhent at the base, then ascending, from nine inches to about a foot high, sometimes branched, leafy, striated, smooth, generally furnished with four joints. Leaves broad, pointed, striated, often wavy at the edges, and slightly hairy on both sides; their sheaths striated, and very hairy, the hairs springing from minute elevated warts. Spikes from 3 to 8, and each from 2 to 4 inches long, slender, all proceeding from nearly the same point at the top of the culm, and spreading out like fingers. Spikelets numerous, all growing on one side of the rachis or common stalk of the spike, in pairs, on short unequally cloven, upright, partial stalks (see fig. 1.): elliptic-oblong, sometimes dark purplish, sometimes green. Calyx of 3 unequal glumes; the outer a very minute scale, scarcely perceptible by the naked eye, the one opposite to it twice its size, and downy on its margin; the innermost one thrice the size of the second, rigid, ribbed, and rough or downy on its margin. Stigmus. and often Anthers, violet coloured.

Mr. Borrer thinks it probable that most of the stations given to this plant above, except that of Battersea, belong to the other British species, Digitaria humifusa, Engl. Bot. Suppl. t. 2613; which species is distinguished from D. sanguinalis by its smooth leaves and sheaths, and its egg-shaped, not oblong, spikelets. My much respected friend, Mr. WILLIAM PAMPLIN, jun. of Lavender Hill, Wandsworth, has kindly furnished me with specimens of Digitaria humifusa, gathered by him in a sand-pit at Weybridge, in Surrey, in 1832, (where, he informs me, it was most abundant,) a station where it had long been known to exist by Mr. BORRER.

Digitaria sanguinalis is an elegant and pretty grass when in flower, but it possesses no properties likely to benefit the Agriculturist. It has acquired the name of sanguinalis, from an idle trick practised by boys in Germany, of tickling their nostrils with the spikelets of this grass, until they draw blood.

[&]quot;——— God made flowers to beautify
The earth, and cheer man's careful mood;
And he is happiest, who hath power
To gather wisdom from a flower,
And wake his heart in every hour
To pleasant gratitude."

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A'RCTIUM *.

Linn. Class & Order. Syngene'sia†, Polyga'mia, Æqualis‡.

Natural Order. Compo'sitæ§, tribe, Cynarocephalæ, Juss.

—Lindl. Syn. pp. 140 & 152; Introd. to Nat. Syst. of Bot. pp. 197
and 200.—Mack. Fl. Hibern. pp. 142 & 154.—Hook. Brit. Fl. (4th
edit.) p. 410.—Compo'sitæ; subord. Cardua'ceæ; Loud. Hort.
Brit. pp. 520 & 521.—Synanthe'reæ; tribe, Cynarocephalæ;
Rich. by Macgilliv. pp. 454 & 455.—Cinarocephalæ, sect. 1.
Juss. Gen. Pl. pp. 171 & 172.—Sm. Gram. of Bot. p. 121.; Engl.
Fl. v. iii. p. 334.—Syringales; type, Cynaraceæ; Burn. Outl.
of Bot. pp. 900 & 931.—Compo'sitæ, Linn.

GEN. CHAR. Involucrum (common calyx) (see figs. 1 & 5.) globose, imbricated, of numerous, spear-shaped, tapering scales, each with an incurved hook at the extremity (see fig. 6.), permanent. Corolla compound, uniform; florets (fig. 2.) numerous, all perfect, equal, tubular; the tube very long and slender; limb wider, egg-shaped, in 5 strap-shaped, regular, spreading segments. Filaments (see fig. 3.) 5, from the tube, hair-like, short. Anthers in a cylindrical, 5-toothed tube, as long as the florets. Germen oblong, downy at the summit. Style (see fig. 2.) thread-shaped, longer than the stamens. Stigmas 2, reflexed. Seed-vessel none, except the permanent closed calyx, falling off entire. Seed (fig. 4.) 1 to each floret, inversely pyramidal, with 4 unequal blunt angles, abrupt. Pappus (see fig. 4.) a tuft of simple rough bristles, shorter than the seed. Receptacle (see figs. 1 & 5.) flat, covered with narrow, strap-shaped, chaffy scales, nearly as long as the calyx.

The globose involucrum of numerous scales, with an incurved hook at their extremity; the chaffy receptacle; and the short, simple pappus; will distinguish this from other genera, with a capitate corolla formed of all tubular florets, in the same class and order.

Two species British.

A'RCTIUM LAPPA. Common Burdock. Clot-burr. Great-burr. Hurr-burr.

SPEC. CHAR. Leaves stalked, heart-shaped, wavy, without prickles. Involucrum when in seed nearly smooth.

Engl. Bot. t. 1228.—Curt. Fl. Lond. t. 238.—Woodv. Med. Bot. v. i. p. 41. t. 15.—Linn. Sp. Pl. p. 1143. excl. var. β.—Huds. Fl. Angl. (2nd edit.) p. 348, in part.—Willd. Sp. Pl. v. iii, pt. 111. p. 1631.—Sm. Fl. Brit. v. ii. p. 844; Engl. Fl. v. iii. p. 380.—With. (7th ed.) v. iii. p. 905.—Hook. Brit. Fl. p. 349, excl. var. β.—Light. Fl. Scot. v. i. p. 445.—Sibth. Fl. Oxon. p. 243.—Abbot's Fl. Bed. p. 174.—Thornton's Fam. Herb. p. 678, with a figure. —Davies' Welsh Bot. p. 75.—Purton's Midl. Fl. v. ii. p. 377. — Relhan's Fl. Cant. (3rd edit.) p. 327.—Hook. Fl. Scot. p. 235, excl. var. β.—Grev. Fl. Edin. p. 171.—Fl. Devon. pp.

Fig. 1. Vertical section of the Involucrum and Receptacle, in an early state.—
Fig. 2. A Floret.—Fig. 3. Stamens, magnified.—Fig. 4. A Seed.—Fig. 5. Vertical section of the Involucrum, and Receptacle, in a more advanced state than Fig. 1.
—Fig. 6. Two Scales of the Involucrum.

From arktos, Gr. a bear; from the coarse texture of the involucrum.
 + See folio 91, n. †.
 † See folio 147, n. †.
 † See folio 27, a.

132 & 156, excl. var. β .—Johnston's Fl. of Berw. v. i. p. 177.—Winch's Fl. of Northumb. and Durh. p. 52, excl. var. β .—Walker's Fl. of Oxf. p. 228.—Bab. Fl. Bath. p. 27.—Dick. Fl. Abred. p. 50,—Irv. Lond. Fl. p. 147.—Luxf. Reig. Fl. p. 69, a.—Cow. Fl. Guide, p. 22.—Mack. Catal. Pl. of Irel. p. 71.; Fl. Hib. p. 156, excl. var. β .—Arctium major, Gray's Nat. Arr. v. ii. p. 435.—Lappa glabra, Lind. Syn. p. 154.—Macr. Man. Brit. Bot. p. 139.—Lappa major Arcium Dioscoridis, Ray's Syn. p. 197.—Bardana major, Johnson's Gerarde, p. 809.

LOCALITIES .- In waste places, and by road-sides; common.

Biennial.-Flowers in July and August.

Root tapering, fleshy, blackish on the outside, whitish within, penetrating deeply into the earth, and sending off many slender fibres. Stem upright, 3 feet or more high, solid, round, furrowed, leafy, much branched. Leaves very large, on footstalks, alternate, heart-shaped, blunt, veiny; whitish and hoary underneath, 3-ribbed at the base, and somewhat waved and notched at the margin. Flowers small, purple. Involucrum globular, nearly smooth, each of the scales ending in a fine hooked spine, which takes firm hold of the coats of animals, a person's dress, &c. Florets funnel-shaped with a long thread-shaped tube. Anthers purple or violet-coloured, projecting beyond the florets. Style white, with expanding stigmas. Seeds oblong, angular, rather flattened, their surface somewhat reticulated. The leaves are larger than those of any other British plant, except the Butter-bur (see folio 139).

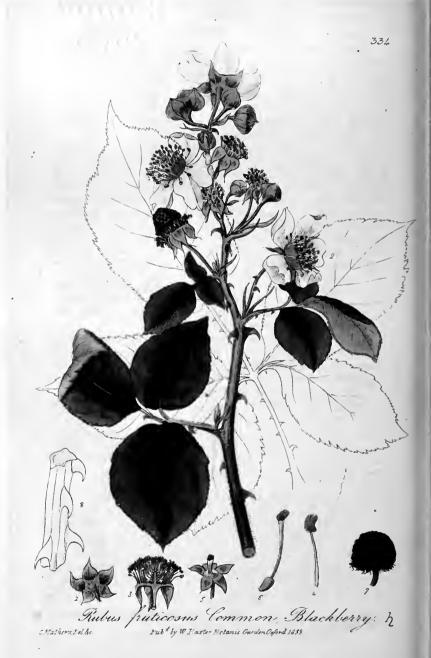
The Burdock is capable of being applied to many uses; the roots and stalks are esculent and nutritive: the stalks, for this purpose, should be cut before the plant flowers, the rind peeled off, and then boiled and served up in the manner of asparagus, or eaten raw as a salad, with oil and vinegar. A decoction of the roots is esteemed by some very skilful physicians equal, if not superior, to that of sarsaparilla, in rheumatic affections. It has also been given in dropsical cases with success, where other powerful medicines had been ineffectually used. The decoction should be made by boiling two ounces of the fresh root in three pints of water to two, which, when intended for dropsical cases, should be taken in the course of two days, or if possible in twenty-four hours. The seeds are also recommended as very efficacious in the same complaint, given either in the form of emulsion, or in powder, to the quantity of a drachm.

According to the observations of LINNAUS, cows and goats eat this plant; sheep and horses refuse it; and swine are not fond of it. Phalana Humuli feeds upon the roots, and the Mottled Orange Moth upon the stems, within which the chrysalis may be found about the month of August, especially in stunted specimens.

Boys catch bats, by throwing the prickly heads into the air. The hooked points of the scales of the heads tend to the dispersion of the seeds, by adhering to the coats of animals, &c.; a circumstance from which the word *Lappa* is supposed to be derived. See WOODVILLE, WITHERING, &c.

A very minute fungus, Erysiphe Arctii, Grev. Fl. Edin. p. 460, is not uncommon on the under side of the leaves of this plant and A. Bardana, about Oxford, in the Autumn.

William Hilliam 3/1/1/1 0.001.0 25 REAL PROPERTY OF 13 12 1 2 1 2000 ALTON - IT Aller March Maria Contract Maria de la companya della companya And the Control of th Marine Control of the last Mary Mary Strategy of the Control of A STATE OF THE PARTY OF THE PAR Description of the and the second Market Street and the second the second second A Total Control BATTER DEVICE TO THE the state of the s San Street, St John States Town THE RESIDENCE WHEN PARTY AND ADDRESS. See that the The second of the second Section of the second section of the second



RU'BUS *.

Linnean Class and Order. ICOSA'NDRIA+, POLYGY'NIA.

Natural Order. Rosa'ceæ‡, Juss. Gen. Pl. p. 334.—Sm. Gram. of Bot. p. 171.—Lindl. Syn. p. 88.; Introd. to Nat. Syst. of Bot. p. 81.—Rich. by Macgilliv. p. 528.—Loud. Hort. Brit. p. 512.; Arbor, et Frutic. Brit. v. ii. p. 670.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 523.—Mack. Fl. Hiber. p. 85.—Hook. Brit. Fl. (4th ed.) p. 404.—Rosales; sect. Rosinæ; subsect. Rosianæ; type, Rosaceæ; subtype, Fragaridæ; Burn. Outl. of Bot. v. ii. pp. 614, 683, 699, & 700.—Senticosæ, Linn.

GEN. CHAR. Calyx (fig. 1.) inferior, of 1 sepal, in 5 deep, simple, somewhat egg-shaped, concave, pointed, permanent segments, either spreading, or converging. Corolla (see fig. 2.) of 5, inversely egg-shaped, spreading or nearly upright, often crisped, or folded petals, about the length of the calyx or shorter, attached by their claws to its rim, alternate with its segments, deciduous. Filaments (see fig. 3.) numerous, hair-like, upright, shorter than the petals, and situated on the rim of the calyx within the corolla (see fig. 2). Anthers roundish, flattened, of 2 lobes. Germens (see figs. 3 & 5.) numerous, globular, crowded closely together in a roundhead. Style one to each germen, lateral, short, ascending, permanent, elongated after flowering. Stigmas blunt, (see fig. 6.) permanent. Fruit (fig. 7.) superior, consisting of numerous, single-seeded, juicy drupes (drupeolæ), placed upon an elevated, dry, spongy receptacle. Seed inverted.

The 5-cleft calyx, flattish at the bottom; and the superior fruit, of several single-seeded juicy drupes, placed upon an elevated spongy receptacle; will distinguish this from other genera, in the same class and order.

Thirteen species British. (Hook. Brit. Fl.)

RU'BUS FRUTICO'SUS. Shrubby Bramble. Common Blackberry. Bumblekites. Scaldberries.

SPEC. CHAR. Stem upright, afterwards decurved, angular, furrowed, mostly rather hairy. Prickles recurved. Leaves digitate, of 3 or 5, stalked, somewhat inversely egg-shaped, pointed, shining, coriaceous leaflets, white underneath. Panicles long, narrow, downy.

Engl. Bot. t. 715.—Weihe and Nees Rub. Germ. t. 20, fide Hooker.—Linn. Sp. Pl. p. 707.—Huds. Fl. Angl. (2nd ed.) p. 220.—Willd. Sp. Pl. v. ii. pt. n. p. 1084.—Sm. Fl. Brit. v. ii. p. 543; Engl. Fl. v. ii. p. 399.—With. (7th ed.) p. 627.—Gray's Nat. Arr. v. ii. p. 586.—Lindl. Syn. (2nd ed.) p. 95.—Hook. Brit. Fl. p. 246.—Macr. Man. Brit. Bot. p. 67.—Lightf. Fl. Scot. v. i. p. 264.—Sibth. Fl. Oxon. p. 160.—Abbot's Fl. Bedf. p. 112.—Purt. Midl. Fl. v. i. p. 243.—Davies'

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. Vertical section of Calyx, Receptacle, &c., showing the situation of the Stamens.—Fig. 4. A single Stamen.—Fig. 5. Calyx and Pistils,—Fig. 6. A single Pistil.—Fig. 7. A Fruit.—Fig. 8. A portion of the Stem.—Figs. 4 & 5, magnified.

[•] Name of uncertain origin; perhaps from the Latin ruber, or the Celtic, rub; red. HOOKER.

[†] See folio 100, note †.

[‡] See folio 313, a.

Welsh Bot. p. 51.—Relh. Fl. Cant. (3rd ed.) p. 203.—Hook. Fl. Scot. p. 160.—Grev. Fl. Edin. p. 115.—Fl. Devon. pp. 87 & 172.—Johnston's Fl. Berw. v. i. p. 114.—Winch's Fl. of Northumb. and Durh. p. 34.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 534.—Loud. Arb. et Fruite. Brit. p. 742.—Walker's Fl. of Oxf. p. 142.—Bab. Fl. Bath. p. 15.—Dick. Fl. Abred. p. 40.—Luxf. Reig. Fl. p. 44.—Cow. Fl. Guide, p. 45.—Mack. Catal. Fl. of Ircl. p. 43.; Fl. Hibern. p. 89.—Rubus abruptus. Lindl. Syn. (1st ed.) p. 92.—R. discolor, ibid. p. 93.—Rubus major, fructo nigro, Ray's Syn. p. 467.

LOCALITIES.—In hedges, thickets, and woods; common.

Shrub.—Flowers in July and August.

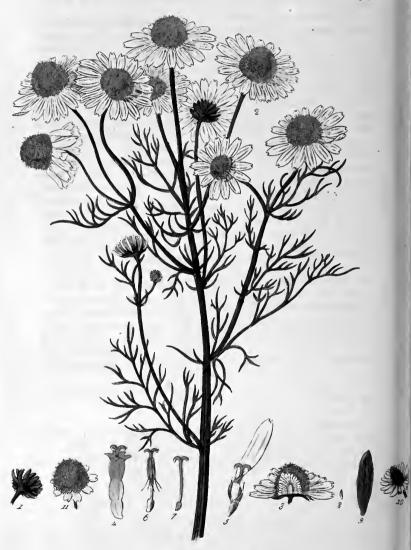
Stems shrubby, many feet long, tough and woody, biennial, if not perennial, in general strongly angular, with intermediate furrows; pale green, often glaucous, and mostly hairy when young; when older, deep purple, with a grey or bluish tinge from the appressed persistent remains of the pubescence. Prickles numerous, strong, straightish, or recurved, on the angles only of the stem and branches, and on the petioles, and occasionally on the panicle. Leaves digitate; leaflets mostly 5, but occasionally only 3, especially on the flowering branches, firm and durable, almost evergreen, varying in size and shape, being sometimes almost round with an abrupt point, but mostly inversely egg-shaped, or somewhat wedge-shaped, with the edges and point remarkably curved downwards; all on considerable partial stalks, that of the terminal one much the longest, the lateral pairs often but imperfectly divided; upper side even, dark green, mostly but not always naked; under side, excepting on the lower leaves of the flowering branches, usually quite white. Stipulas bristle-shaped, hairy, in pairs upon each petiole near the base. Panicle upright, long, narrow, and downy, without glandular hairs. Bracteus solitary, strap-spearshaped, white and hoary. Flowers upright and handsome. Calyx woolly all over, destitute of prickles and of glandular hairs; its segments short, rarely acuminate, reflexed in the flower as well as in fruit. Petals of a delicate pink, rarely if ever white. Stamens Fruit nearly globular, black, (sometimes, it is said, white,) composed of many rather small, closely packed, somewhat depressed, single-seeded, juicy drupes or grains, of a sweet but mawkish flavour, ripening late in Autumn.

This species is considered as being more common in English hedges than any of the other brambles, and also as attaining a greater size. The froit is said to be astringent; but it has been eaten by children, in every country where the plant grows wild, since the time of PLINY. It has also been used, both in France and England, to produce a subacid drink; an inferior description of wine; and, by fermentation and distillation, a strong spirit. It is also used for making a rob, or jam, which is considered good for sore throats. The green twigs will dye wool and silk black. Silk-worms will sometimes feed upon the leaves in defect of those of the molberry. The long tough shoots are used by thatchers, straw-hive, and mat-makers, to bind their other materials together; "and in times of better feeling, when the disgosting traffic of the body-snatcher was an unheard-of enormity, they were considered a sufficient security for binding the sod over rostic graves; from which even to have gathered a flower, planted by the hand of affection, woold have been deemed a profanation." (Withering). See Sm. Engl. Fl.; Hook. Brit. Fl.; & Loud. Arb, et Fr. Brit.

A corious little fongus, Aréyma bulbosum, Hook. Brit. Fl. v. ii. pt. 11. p. 358; Puccinia Rubi, Baxt. St. Crypt. Oxon. n. 33.; is parasitical on the under side of the leaves of this species of Bramble about Oxford, in small black clusters.

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Matricaria Chamomilla. Wild Chamomile. 0

Catathory Del. & Sc.

Pul to W. Bester Bolanic Garden. Oxford. 1839.

MATRICA'RIA*.

Linnean Class and Order. Sygene'sia+, Polyga'mia, Supe'r-

FLUA ‡.

Natural Order. Compo'sites, tribe, Corymbi'feræ||, Juss.—Lindl. Syn. pp. 140 & 142.; Introd. to Nat. Syst. of Bot pp. 197 and 199.—Mack. Fl. Hibern. p. 142.—Hook. Brit. Fl. (4th edit.) p. 410.—Compo'sitæ; subord. Anthemi'deæ, Loud. Hort. Brit. pp. 520 & 522.—Synanthe'reæ; tribe, Corymbi'feræ, Rich. by Macgilliv. pp. 454 & 455.—Corymbiferæ, sect. 5. Juss. Gen. Pl. pp. 177 & 185.—Sm. Gram. of Bot. pp. 121 & 124.; Engl. Fl. v. iii. p. 334.—Syringales; subord. Asterosæ; sect. Asterinæ; subsect. Asterinæ; type, Asteraceæ; Burn. Outl. of Bot. pp. 900, 901, 920, 924, & 926.—Compo'sitæ, Linn.

GEN. CHAR. Involucrum (common calyx) (fig. 1.) slightly convex, closely imbricated, with several oblong, nearly equal, membranous-edged scales. Corolla (fig. 2.) compound, radiant; florets of the conical disk (see fig. 3.) numerous, perfect, tubular (see fig. 4.), with 5 equal spreading segments; florets of the ray numerous, strap-shaped, spreading or reflexed, blunt, with 3 terminal teeth (see fig. 5). Filaments (see fig. 6.) 5, in the tubular florets only, hair-like, very short. Anthers (see fig. 6.) in a cylindrical tube. Germen (see figs. 5, 6, & 7.) in all the florets inversely egg-shaped, angular. Style (see figs. 6 & 7.) thread-shaped, not prominent. Stigmas (see figs. 4--7.) spreading, blunt. Seed-vessel none, but the unchanged expanding calyx. Seed (figs. 8 & 9.) in all the florets inversely egg-shaped, angular, without any border or crown. Receptacle (see fig. 10.) naked, almost perfectly cylindrical, hollow.

The nearly flat *involucrum*, with closely imbricated, nearly equal, membranous-edged scales; the numerous, strap-shaped florets of the ray; the nearly cylindrical, naked receptacle; and the seeds without either pappus or border; will distinguish this from other genera in the same class and order.

It differs from Anthemis (t. 328.) in the receptacle being naked, not chaffy.

One species British.

MATRICA'RIA CHAMOMI'LLA. Wild Chamomile. Bitter Chamomile. Corn Fever-few.

Spec. Char. Leaves smooth, twice-pinnatifid, the segments very narrow, strap-shaped. Involucrum nearly flat, its scales bluntish.

Engl. Bot. t. 1232.—Curt. Fl. Lond. t. 331.—Mart. Fl. Rust. t. 74.—Linn. Sp. Pl. p. 1256.—Huds. Fl. Angl. (2nd ed.) p. 372.—Willd. Sp. Pl. v. iii. pt. 111. p. 2161.—Sm. Fl. Brit. v. ii. p. 902.; Engl. Fl. v. iii. p. 454.—With. (7th edit.)

Fig. 1. Involucrum.—Fig. 2. Corolla.—Fig. 3. A Flower with some of the florets taken off to show the cylindrical receptacle.—Fig. 4. A Floret of the Disk.—Fig. 5. A Floret of the Ray.—Fig. 6. Stamens and Pistil.—Fig. 7. Germen, Style, and Stigma.—Figs. 8 & 9. Seed.—Fig. 10. Involucium and Receptacle.—Fig. 11. A Flower of the variety with very short florets of the ray.—Figs. 4, 5, 6, 7, & 9, magnified.

^{*} From its reputed medical virtues. ‡ See fol. 36, n. ‡. § See fol. 27, a. \$ See fol. 36, a.

v. iii. p. 952.—Lindl. Syn. p. 194.—Hook. Brit. Fl. p. 366.—Macr Man. Brit. Bot. p. 130.—Lightf, Fl. Scot. v. i. p. 491.—Sibth. Fl. Oxon. p. 258.—Abbot's Fl. Bedf. p. 185.—Davies' Welsh Bot. p. 80.—Purt. Midl. Fl. v. ii. p. 401.—Rell. Fl. Cant. (3rd edit.) p. 350.—Hook. Fl. Scot. p. 246.—Grev. Fl. Edin. p. 181.—Fl. Devon. pp. 140 & 161.—Winch's Fl. of Northumb. and Durth. p. 55.—Walker's Fl. of Oxf. p. 246.—Irv. Lond. Fl. p. 154.—Luxf. Reig. Fl. p. 91.—Mack. Catal. Pl. Irel. p. 74.; Fl. Hibern. p. 150.—Chamomilla vulgaris, Trag. llist. p. 148.—Gray's Nat. Arr. v. ii. p. 454.—Chamæmetum, Ray's Syn. p. 184.—Johnson's Gerarde, p. 754.

LOCALITIES.—In corn-fields, waste ground, on dunghills, and by road-sides;

not uncommon.

Annual.—Flowers from May to August.

Root rather large and woody, fibrous. Stem upright, from 12 to 18 inches high, much branched, solid, somewhat angular, striated, smooth, leafy. Leaves alternate, sessile, clasping the stem, smooth, deep green, the upper ones simply, the rest doubly pinnatifid (wing-cleft), the segments strap-shaped, very narrow, and minutely pointed. Flowers numerous, terminal, solitary, on striated, naked peduncles. Scales of the Involucrum somewhat dilated outwards, rounded, and bluntish. Florets of the Ray white, reflexed at might, elliptic-oblong, with 3 teeth. Dish conical, very prominent, of numerous yellow florets. Receptacle oblong, nearly cylindrical, naked, dotted. Seeds angular, oblique, of a pale brown colour, quite destitute of any crown or border.

I found a variety of this species in Cowley fields near Oxford, on July 12, 1838, in which the florets of the ray were very short, and rather fewer in number than in the common one. A single flower of this variety is represented at fig. 11, of the accompanying

plate.

Matricaria Chamomilla is said to possess the same properties as the officinal Chamomile (Anthemis nobilis), but in an inferior degree. The Finlanders use an infusion of it in consumptive cases.—According to the observations of LINNAUS, cows, goats, and sheep eat it; horses and swine refuse it. The larvæ of Cassida viridis are nourished by it.

A blue essential oil is obtained, by distillation, from the flowers, which is supposed to contain all their virtues.

SUMMER.

- Who loves not Summer? It is the tide of joy !- The Sun, then, throws Out from his blue pavilion in the sky His richest rays, to feed the gladsome Earth. The summer-time is Nature's festival, When Earth and all its denizens rejoice; The winds are soft, and warm with sunshine; airs, Cozening the lilies of their ripe perfume, Bear, on their essenced wings, marauding bees In many a swarm, an amorous foray bent Against the honeyed flowerage! Gentle doves Coo in the woods, or through the welkin winnow, Catching the sunlight on their painted pinions :-And streams—each like a beauteous eup-bearer— Pour forth extatie draughts to quench the thirst Of the proud antler'd deer, and timid hare. The land is bright with flowers, that gladly lift Their fair heads to the day-All except one-The modest harebell, in its pessive grace, Whose bells, intoxicated with the dew, Droop down abashed, ashamed to greet the Sun!





Sinafris nigra. Black Mustard. O 2 rub dy W. Rastin E otame Garden 0x for it 1889

SINA'PIS *.

Linnean Class and Order. TETRADYNA'MIA+, SILIQUOSA +. Natural Order. CRUCI'FERƧ, Juss. Gen. Pl. p. 237.—Sm. Gram. of Bot. p. 138.; Engl. Fl. v. iii. p. 153.—Rich. by Macgilliv. p. 498.—CRUCIFERÆ; subord. ORTHOPLO'CEÆ; tribe, BRASSI-CEE; Lindl. Syn. pp. 20 & 32.; Introd to Nat. Syst. of Bot. pp. 14 to 18.—Loud. Hort. Brit. pp. 498 & 499.; Mag. Nat. Hist. v.i. pp. 143 & 240.—Don's Gen. Syst. of Gard. and Bot. v. i. pp. 146 and 150.—Mack. Fl. Hibern. pp. 16 & 27.—Hook. Brit. Fl. (4th ed.) pp. 397 & 398.—Rosales; subord. Rheadose; sect. Rhea-DINÆ; type, BRASSICACEÆ; subtype, RAPHANIDÆ; Burn. Outl. of Bot. v. ii. pp. 614, 784, 847, 853, & 860.—Siliquos E, Linn.

GEN. CHAR. Calyx (figs. 1 & 2.) inferior, equal, and nearly flat at the base; of 4, oblong, straight, spreading, deciduous sepals. Corolla (see fig. 2.) cruciform, of 4, inversely egg-shaped, rounded, entire, or slightly notched, spreading petals, with strap-shaped, upright claws. Filaments (see fig. 4.) 6, awl-shaped, simple, upright. Anthers oblong, slightly spreading. Glands (see fig. 4.) 4; 2 at the inside of the shorter filaments, 2 at the outside of the longer. Germen (see figs. 4 & 5.) cylindrical, tapering into a short style. Stigma capitate, rather small. Pod (see figs. 6 & 7.) nearly cylindrical, or somewhat 4-angled, variously beaked, of 2 concave, undulated valves, and 2 longitudinal cells, besides 1 for the most part in the beak, generally barren. Seeds in a single row, nearly globular (see figs. 8 & 9), with 1 occasionally in the beak. Cotyledons conduplicate, their double edges meeting the radicle (0>>).

The spreading calyx; the nearly cylindrical, somewhat beaked pod, of 2 valves; and the conduplicate cotyledons; will distinguish this from other genera in the same class and order.

Five species British.

SINA'PIS NI'GRA. Black Mustard. Common Mustard.

SPEC. CHAR. Pods somewhat 4-angled, smooth, even, slightly beaked, close-pressed to the stalk. Lower leaves lyrate; upper strap-spear-shaped, quite entire, stalked, smooth.

Eggl. Bot. t. 969.—Woodv. Med. Bot. v. iii. p. 409. t. 451.—Mart. Fl. Rust. t. 51.—Linn. Sp. Pl. p. 933.—Huds. Fl. Angl. (2nd ed.) p. 297.—Sm. Fl. Brit. v. ii. p. 722.; Engl. Fl. v. iii. p. 222.—With. (7lh edit.) v. iii p. 786.—Gray's Nat. Arr. v. ii. p. 686.—Lindl. Syn. p. 33.—Hook. Brit. Fl. p. 309.—Macr. Man. Brit. Bot. p. 22.—Lightf. Fl. Scot. v. i. p. 361.—Sibih. Fl. Oxon. p. 209.—

Fig. 1. Calyx.—Fig. 2. Calyx and Corolla.—Fig. 3. A separate Petal.—Fig. 4. Stamens and Pistil.—Fig. 5. Germen, Style, and Stigma.—Fig. 6. A Pod.—Fig. 7. Ditto, with the valves separated.—Figs. 8 & 9. Seed.—Fig. 10. The Septum, or Partition.—All, except figures 6. 7, 8, and 10, more or less magnified.

[•] From the Greek sinapi, which again THEIS derives from the Celtic nap, a

turnip, or cabbage. Hooken.

† See fol. 38, note †.

\$ See fol. 38, a.

[From orthos, Gr. upright; and place, Gr. a fulding together; the cotyledons being incumbent, and folded together or plaited lengthwise through their middle, and enwrapping the radical in the recess, thus, o>>.

Abbot's Fl. Bedf. p. 146.—Thornt. Fam. Herb. p. 614, with a figure.—Davies' Welsh Bot. p. 65.—Purt. Midl. Fl. v. i. p. 310.—Relb. Fl. Cant. (3rd edit.) p. 273.—Hook. Fl. Scot. p. 204.—Fl. Devon. pp. 114 & 190.—Johnst. Fl. Berw. v. i. p. 147.— Winch's Fl. of Northumb. and Durh. p. 45.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 248.—Loud. Enevel. Gard. (new edit. 1835) p. 863. paragr. 4434.—Walker's Fl. of Oxf. p. 196.—Perry's Pl. Varvic. Selectæ, p. 57.—Bab. Fl. Bath. p. 5.—Irv. Lond. Fl. p. 165.—Luxf. Reig. Fl. p. 59.—Mack. Catal. Pl. Irel. p. 63.; Fl Hibern. p. 29.—Sinapi sativum secundum, Ray's Syn. p. 295.—Johnson's Gerarde, pp. 243 & 244, description only.

LOCALITIES.—In fields, waste ground, and on banks by road-sides; frequent.

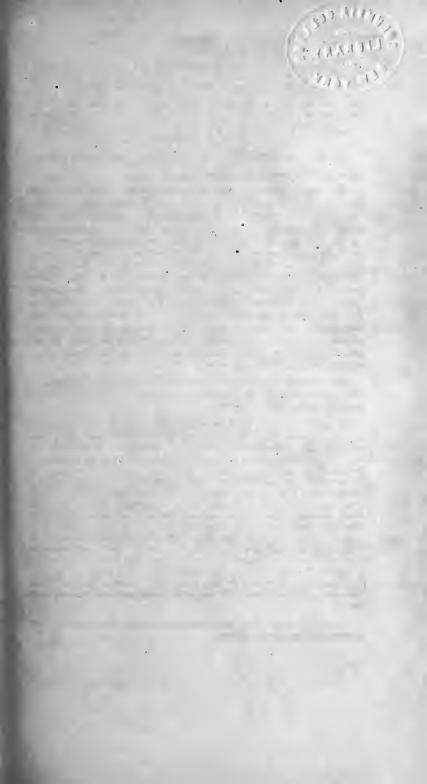
Annual.-Flowers in June and July.

Root small, tapering, fibrous. Stem upright, 3 or 4 feet high, round, somewhat striated, the upper part smooth, with many distant, spreading branches. Leaves petioled, variously lobed and toothed; those near the root large, lyrate, and rough; those higher up the stem smooth, frequently simple, spear-shaped, and toothed; the uppermost strap-spear-shaped, quite entire, spreading or pendulous. Flowers numerous, in somewhat corymbose racemes, or spikes, smaller than in either Sinapis arvensis, or S. alba. Calyx yellowish, widely spreading, but not quite horizontal. Corolla pale yellow; petals inversely egg-shaped. Pod small, close-pressed to the stem, bluntly 4-angled, nearly even, and smooth, tipped with the permanent, 4-angled, somewhat elongated, style, and capitate stigma; but wanting the proper, often seed-bearing, beak of this genus, though the style finally becomes tumid at the base. Seeds several, small, globose, brown.

This is easily distinguished from the other species of Sinapis by the upper leaves being pendulous, and by the pods being closely pressed to the stem.

The seeds of this plant, when reduced to powder, make the common mustard so much in request at our tables. It is much cultivated in Essex, and the seed sold to the manufacturers of flour of mustard. It is prepared by drying the seed on a kiln, and grinding them into powder. The black husks of the seeds are separated by very delicate machinery. The French either do not attempt or do. not succeed in separating the husks, as their mustard when brought to table is always black. It is, however, more pungent than ours, because the quality resides chiefly in the husk. The constituents of mustard appear to be chiefly starch, mucous, a bland fixed oil, an acrid volatile oil, and an ammoniacal salt. The seeds taken inwardly, in the quantity of a table spoonful or more, gently relax the bowels, and arc of service in asthma, chronic rheumatism, and palsy. The bruised seed, or its flour, mixed with water, proves a speedy and safe emetic, and is often used as such in paralytic cases. Cataplasms, formed with powdered mustard-seed, crumb of bread, and vinegar, (hence called sinapisms,) are commonly applied to the soles of the feet, as stimulants, in fevers that require such treatment. The tender leaves are sometimes boiled and eaten as greens in the Spring.

Phalæna fuliginosa lives upon the different species; and the caterpiller of Pontia Daplidice devours the secd.





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Inthe by W.P. axter Bolanic Carden and 11330

BY WOTTER Sa

ALI'SMA*.

Linnean Class and Order. HEXA'NDRIA, + POLYGY'NIA.

Natural Order. ALISMA'CEƇ, Dr. R. Brown.—Lindl. Syn. p. 253.; Introd. to Nat. Syst. of Bot. p. 253.—Rich. by Macgilliv. p. 399.—Loud. Hort. Brit. p. 536.—Mack. Fl. Hibern. p. 271.—Hook. Brit. Fl. (4th edit.) p. 421.—LILIALES; sect. ALISMINÆ; type, ALISMACEÆ; Burn. Outl. of Bot. v. i. pp. 418, 422, & 423.—JUNCI, sect. 3. Juss. Gen. Pl. pp. 43 & 46.—Sm. Gram. of Bot. p. 72.—TRIPETALOIDEÆ, Linn.

GEN. CHAR. Calyx (see figs. 1 & 2.) inferior, of 3 egg-shaped, concave, permanent sepals. Corolla (see fig. 2.) of 3, roundish, flat, widely spreading, deciduous petals, much larger than the sepals, and alternate with them. Filaments (fig. 3.) 6, awl-shaped, shorter than the corolla. Anthers roundish. Germens (see figs. 1 & 4.) superior, more than 5, ranged variously, tumid or compressed. Styles (see fig. 4.) simple, slender, oblique. Stigmas blunt. Capsules (fig. 5.) as many as the germens, clustered, distinct, indehiscent, 1-seeded. Seeds with a much incurved embryo (fig. 7).

Distinguished from other genera, in the same class and order, by the calyx of 3 sepals; the corolla of 3 petals; the many, clustered, distinct, indehiscent, 1-seeded capsules; and the much incurved embryo.

Three species British.

ALI'SMA PLANTA'GO. Great Water-Plantain. Broad Water-Plantain. Greater Thrum-wort.

SPEC. CHAR. Leaves egg-shaped, acute. Fruit depressed. Capsules bluntly triangular.

Engl. Bot. t. 837.—Curt. Fl. Lond. t. 318.—Linn. Sp. Pl. p. 486.—Huds Fl. Angl. (2nd cd.) p. 158.—Willd. Sp. Pl. v. ii. pt. 1. p. 276.—Sm. Fl. Brit. v. i. p. 400.; Engl. Fl. v. ii. p. 203.—Lindl. Syn. p. 253.—Hook. Brit. Fl. p. 172.—Macr. Man. Brit. Bot. p. 222.—Light. Fl. Scot. v. i. p. 193.—Sibth. Fl. Oxon. p. 120.—Abbot's Fl. Bedf. p. 83.—Davies' Welsh Bot. p. 36.—Purt. Midl. Fl. v. i. p. 188.—Relh. Fl. Cantab. (3rd edit.) p. 152.—Hook. Fl. Scot. p. 114.—Grev. Fl. Edin. p. 85.—Fl. Devon. pp. 66 & 127.—Johnst. Fl. Berw. v. i. p. 84.—Winch's Fl. of Northumb. and Durham, p. 24.—Burnett's Outl. of Bot. v. i. pp. 423 and 424, with a figure.—Walker's Fl. of Oxf. p. 105.—Bab. Fl. Bath. p. 47.—Dick. Fl. Abred. p. 35.—Irv. Lond. Fl. p. 107.—Luxf. Reig. Fl. p. 32.—Cow. Fl. Guide, p. 19.—Mack. Catal. Pl. Irel. p. 35.; Fl. Hibern. p. 271.—Alisma major, Gray's Nat. Arr. v. ii. p. 216.—Plantago aquatica, Ray's Syn. p. 257.—Plantago aquatica major, Johnson's Gerarde, p. 417.

LOCALITIES .- In ponds, watery ditches, and margins of rivers; common.

Perennial.—Flowers in July, August, and September.

Root fibrous. Leaves all radical, egg-shaped, pointed, smooth, quite entire, slightly ribbed, sometimes a little waved at the margin. Petioles (leaf-stalks) very long, upright, semicylindrical, with 2

Fig. 1. Calyx and Pistils.—Fig. 2. Calyx and Corolla.—Fig. 3. Stamens and Pistils.—Fig. 4. Germens, Styles, and Stigmas.—Fig. 5. Capsules or Fruit.—Fig. 6. A single Capsule.—Fig. 7. Seed, highly magnified.

sharp, and rather prominent, edges, the base dilated, and sheathing, and frequently of a purplish colour. Scape (flower-stalk) rising 2 or 3 feet above the water, bluntly 3-angled, naked, smooth, panicled, with numerous, whorled, compound, spreading, bractcated branches and subdivisions. Bracteas short, several together, spearshaped, membranous, brownish. Flowers terminating each branch or subdivision of the panicle, solitary, small. Calyx of 3, cggshaped, somewhat pointed, concave, spreading, striated sepals, membranous at the margins. Corolla of 3, roundish, flat, spreading petals, ragged at the end, of a delicate pale purple, yellow at Filaments very slender, slightly bending inwards, fixed to the receptacle. Fruit (fig. 5.) somewhat 3-cornered. Capsules (see fig. 5.) about 18, ranged side by side in a circle. Embryo (see fig. 7.) curved. The flowers are said to be fully expanded about four in the afternoon. When growing in deep or running water the leaves become lengthened out more or less, and then constituting the varieties β and γ of Sir J. E. Smith's English Flora. In the latter, Sir James informs us, they are perfectly linear.

This is one of our most common plants in and by the sides of ponds, rivers, watery ditches, &c. It " has long enjoyed a not unquestioned reputation for its specific influence in the treatment of canine madness. Several cases have been published by LEWSHIN, BURDACH, Moser, and others, in which it is asserted to have worked well-marked cures. Its root was administered in doses of two drachms and a half daily, and the leaves made into a poultice and applied to the wound. But notwithstanding these assurances, it is probable that the escape of the patients alluded to should be rather attributed to the well known casualty of the hydrophobic poison having been never introduced, than to the antilyssic virtues of Alisma. The powdered roots have been substituted for uva ursi with advantage in cases of irritable bladder, in doses of a drachm." The tubers of this plant, as well as those of the sagittaria (t. 109.), contain a good deal of amylaceous matter, and form a nutritious food. They are commonly caten by the Kalmuc Tartars. Burn. Outl. of Bot. p. 424.

It is observed by Mr. HENRY TURNER, of the Bury Botanic Garden, that the circulation of the Sap in Plants may be as distinctly traced in the *Alisma Plantago*, as in the *Charas*. See *Mag. Nat. Hist.* v. viii. p. 630.

"There is a spell in every flower, a sweetness in each spray,
And every simple bird has power to please me with its lay.
And there is music on the breeze that sports along the glade;
The crystal dew-drops on the trees are gems by fancy made.
O, there is joy and happiness in every thing I see,
Which bids my soul rise up and bless the God who blesses me."

TINATH

mysel.



Lorylus Avellana. Havel-nut. h. put. by W. Baxton Boramo Gardon Oxford 1889.

W Willisse

CO'RYLUS*.

Linnean Class and Order. Monœ'cia†, Polya'ndria.

Natural Order. Cupuli'FERE, Richard .-- Lindl. Syn. p. 239; Introd. to Nat. Syst. of Bot. p. 97.—Rich. by Macgilliv. p. 545.— AMENTA'CEE, Linn.—Juss. Gen. Pl. p. 407.—Sm. Gram. of Bot. p. 189.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 242.—Hook. Brit. Fl. (4th ed.) p. 419.—QUERNEALES; sect. QUERCINE; type, Corylace :; Burn. Outl. of Bot. v. ii. pp. 523 & 531.

GEN. CHAR. Sterile Flowers in cylindrical imbricated catkins (fig. 1). Scales sessile, imbricated, much contracted at the base. in 3 deep, egg-shaped, concave segments, the middle one the largest, lying over the two lateral ones (see fig. 2). Corolla none. Filaments (see fig. 2.) 8, or more, hanging from the inner side of each scale, hair-like, rather short. Anthers roundish, of I cell, bearded at the tip. Fertile Flowers in a bud-like catkin, which is developed into a branchlet; bearing the flowers at its tip (see fig. 3). Outer Calyx (see fig. 4.) inferior, of 1 sepal, decply divided, manyflowered, subsequently much enlarged, permanent; inner not obvious, formed of a slightly villous membrane, that covers the germen, to the tip, and, as that progresses to a nut, adheres to it most closely and becomes part of the shell. Corolla none. Germen (see fig. 5.) very small, egg-shaped, with rudiments of 2 seeds. Styles (see fig. 5.) 2, very short. Stigmas (see fig. 5.) prominent, awl-shaped, coloured, finely downy, deciduous. Nut (see fig. 6.) egg-shaped, with a broad scar, bony, not bursting, a little compressed and downy at the top, scarcely pointed, invested with the greatly enlarged, tu-bular, coriaccous, jagged, downy outer-calyx or involucrum; by abortion, 1-secded. Seed (see fig. 6, b.) adhering to the remains of the dissepiment. Cotyledons large, without separate albumen; embryo oblong, at the top of the seed.

The sterile flowers in a cylindrical catkin, each of a 3-lobed scale, with 8 or more stamens, destitute of a corolla; the fertile flowers in a bud-like catkin, each flower with 2 stigmas; and the nut inclosed in the laccrated outer calyx or involucrum; will distinguish this from other genera in the same class and order.

One species British.

CO'RYLUS AVELLA'NA . Common Hazel-nut. Stock-nut.

SPEC. CHAR. Stipulas oblong, blunt. Leaves roundish, heartshaped, pointed. Young branches hairy. Calyx bell-shaped, shorter than the nut.

Fig. 1. Catkin of Sterile Flowers.—Fig. 2. A separate Sterile Flower.—Fig. 3. Bud-like Catkin of Fertile Flowers.—Fig. 4. The same with the outer scales taken off.—Fig. 5. Germen and Pistils of a Fertile Flower.—Fig. 6. The Fruit; a. the shell; b. the kernel or seed; c. the umbilical cord.

^{*} From korus, Gr. a casque or cap; the fruit, with its involucrum, appearing if covered with a bonnet.

+ See folio 93, note +.

‡ From Avellino, a city of Naples, in the neighbourhood of which nuts (the round as if covered with a bonnet.

Spanish), are cultivated in great abundance.

Engl. Bot. t. 723.—Hook. Fl. Lond. t. 17.—Hunt. Evel. Silva, p. 220, with a plate.—Linn. Sp. Pl. p. 1417.—Huds. Fl. Angl. (2nd ed.) p. 423.—Wild. Sp. Pl. v. iv. pt. 1. p. 470.—Sm. Fl. Brit. v. iii. p. 1030.; Engl. Fl. v. iv. p. 157.—With. (7th edit.) v. ii. p. 491.—Lindl. Syn. p. 240.—Hook. Brit. Fl. p. 410.—Macr. Man. Brit. Bot. p. 217.—Loud. Arb. et Fruite. Brit. p. 2017. f. 1941.—Lightf. Fl. Scot. v. ii. p. 586.—Sibth. Fl. Oxon. p. 127.—Abbot's Fl. Bedf. p. 211.—Davies' Welsh Bot. p. 90.—Purt. Midl. Fl. v. ii. p. 465.—Rell. Fl. Cant. (3rd edit.) p. 396.—Hook. Fl. Scot. p. 275.—Grev. Fl. Edin. p. 204.—Kent's Sylvan Sketches, p. 154.—Fl. Devon. pp. 156 & 133.—Johnst. Fl. Berw. v. i. p. 208.—Winch's Fl. of Northumb. & Durh. p. 62.—Walker's Fl. of Oxf. p. 284.—Bab. Fl. Bath. p. 46.—Dick. Fl. Abred. p. 56.—Irv. Lond. Fl. p. 114.—Luxf. Reig. Fl. p. 82.—Cow. Fl. Guide, p. 28.—Mack. Catal. Pl. Irel. p. 83.; Fl. Hihern. p. 256.—Corylus sylvestris, Ray's Syn. p. 439.—Johns. Gerarde, p. 1438.—Gray's Nat. Arr. v. ii. p. 246.

Localities.—In woods, copses, and hedges; very common. Shrub or low Tree.—Flowers in March and April.

A large shrub, with numerous stems rising from the root; or a small bushy tree, with copious branches, which are hairy, or glandular, when young. Bark ash-coloured, and sometimes cloven, on the trunk; bright brown, and frequently spotted with white, on the branches. Leaves alternate, on short petioles, roundish. 2 or 3 inches wide, doubly serrated, darkish green, and slightly hairy above, paler, and more downy beneath. Sterile Cathins (fig. 1.) terminal, clustered, from 1 to 2 inches long, pendulous, greyish, opening in the early Spring, before the leaves appear. Fertile Flowers (see fig. 3.) in small, scaly, bud-like involucrums, their crimson stigmas protruding, in a tuft, at the summit. Nuts 2 or 3 together, sessile, roundish egg-shaped, about half covered by the greatly enlarged, jagged, permanent, outer calyx of their respective flowers.

Some suppose the *Filbert* to be a variety of the *Common Hazel*, but Sir J. E. Smith was of a different opinion, and considered the forms and proportions of the *calyx* of the fruit to indicate distinct species, permanent from seed.

As an underwood, the Hazel is valuable for making hoops, crates, hurdles, wattles, walking-sticks, fishing-rods, whip-handles, lies for fagots, springes to catch birds, and for fastening down thatch. Hazel rods, cut as nearly as possible of the same size, and varnished, form an admirable material for constructing rustic garden seats, flower-haskets, &c. (See Mr. Loudon's Arb. et Frutic. Brit. pp. 2023, 2024, and 2025; and his Gard. Mag. v. ix. pp. 615 and 678). The roots, when they are of sufficient size, afford curiously veined pieces, which are used in veneering cabinets, tea-chests, &c. The wood makes an excellent charcoal, which is preferred by painters and engravers, for the freedom with which it draws, and the readiness with which its marks can be rubbed out. It is a practice in Italy to put the chips of Hazel into turbid wine, to clear it, which it does in 24 hours; and in countries where yeast is scarce, the twigs of Hazel twisted together, so as to be full of chinks, and steeped in ale during its fermentation, then hung up to dry, may be put into wort instead of yeast. It is of the young twigs of this plant that the celebrated divining rod, for the detecting, and finding out of minerals, is taken. Even within these few years it has been very positively affirmed that the rod, when held in the hands of certain persons, will discover the presence of water; and it is remarked as extraordinary, that no effect is produced at a well or ditch, or where earth does not interpose between the twig and the water. See Quarterly Review, vol. xxii. pp. 373 & 374.—The kernels of the fruit (see fig. 6, b.) have a mild, farinaceous, oily taste, agreeable to most palates, though in large quantities they appear to be difficult of digestion, and have sometimes produced alarming symptoms. In the Highlands of Scotland the transfer of the control of the symptoms. land the tree is considered of ill omen, but the finding of two nuts naturally conjoined highly felicitous. These they call Cno-chomhlaich, and carry them as an efficacious charm against witchcraft. For an account of the many parasitical fungi that are to be found on this tree, as well as for the insects that feed upon it and its fruit, with many interesting particulars relating to its History, Geography, &c. &c., see Mr. Loudon's Arb. et Frutic. Brit. pp. 2016 to 2028.

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Artemisia Absinthium Common Wormwood. 4

CMathematic Ser and Garden D. Acres 1889.

ARTEMI'SIA *.

Linnean Class and Order. Sygene'SIA+, POLYGA'MIA, SUPE'R-

Natural Order. Compo'sit & §, tribe, Corymbi'fer & ||, Juss.-Lindl. Syn. pp. 140 & 142.; Introd. to Nat. Syst. of Bot. pp. 197 and 199.—Mack. Fl. Hibern. p. 142.—Hook. Brit. Fl. (4th edit.) p. 410.—Compo'site; subord. Anthemi'dee, Loud. Hort. Brit. pp. 520 & 522.—Synanthe're.e; tribe, Corymbi'fer.e, Rich. by Macgilliv. pp. 454 & 455.—Corymbifer. E, sect. 4. Juss. Gen. Pl. pp. 177 & 184.—Sm. Gram. of Bot. pp. 121 & 123.; Engl. Fl. v. iii. p. 334.—Syringales; subord. Asterosæ; sect. Aste-RINÆ; subsect. ASTERIANÆ; type, ASTERACEÆ; Burn. Outl. of Bot. pp. 900, 901, 920, 924, & 926.—Compo'sitæ, Linn.

GEN. CHAR. Involucrum (common calyx) (fig. 1.) egg-shaped or round, imbricated; scales rounded, convex, compact, membranous at the edges. Corolla (see fig. 2.) compound. Florets (fig. 3.) all tubular; those of the disk numerous, perfect, 5-toothed; those of the circumference few, slender, entire, without stamens. Filaments (see fig. 4.) 5, in the florets of the disk only, very short. Anthers united into a 5-toothed tube. Germen (see figs. 4 & 5) in all the florets small, inversely egg-shaped. Style (see figs. 3, 4, & 5.) prominent, deeply divided. Stigmas cloven or notched, recurved. Seed inversely egg-shaped, naked. Receptacle (see fig. 7.) rather convex, either naked or hairy.

The egg-shaped or rounded, imbricated involucrum; the awlshaped, entire, inconspicuous florets of the ray; the naked or hairy receptacle; and the seed without any pappus; will distinguish this from other genera, with discoid flowers, in the same class and

order.

Five species British.

ARTEMI'SIA ABSI'NTHIUM. Unpleasant Wormwood. Common Wormwood.

SPEC. CHAR. Leaves bipinnatifid, clothed with short, silky down; segments spear-shaped. Flowers hemispherical, drooping.

Receptacle hairy.

Engl. Bot. t. 1230.—Woodv. Med. Bot. v. ii. p. 328. t. 120.—Linn. Sp. Pl. p. 1188.—Huds. Fl. Angl. (2nd edit.) p. 358.—Willd. Sp. Pl. v. iii. pt. 111. p. 1844.—Sm. Fl. Brit. v. ii. p. 864.; Engl. Fl. v. iii. p. 498.—Wilh. (7th ed.) v. iii. p. 923.—Lindl. Syn. p. 149.—Huok. Brit. Fl. p. 355.—Macr. Man. Brit. Bot. p. 131.—Lightf. Fl. Scot. v. i. p. 467.—Sibth. Fl. Oxon. p. 250.—Abbot's Fl. Bedf. p. 179.—Davies' Welsh Bot. p. 77.—Purt. Midl. Fl. v. ii. p. 393.—Relh. Fl. Cant. (3rd edit.) p. 336.—Hook. Fl. Scot. p. 239.—Grev. Fl. Edin. p. 175.—Fl. Devon. pp. 136 & 158.—Johnst. Fl. Berw. v. i. p. 181.—Winch's Fl. Northumb. and Durh. p. 53.—Walker's Fl. of Oxf. p. 235.—Loud. Encycl. of Gard. (new edition.) p. 878. parag. 4652.—Bab. Fl. Bath. p. 27.—Irv. Lond. Fl. p. 146.—Mack. Catal. Pl. of Irel. p. 72.; Fl. Hibern. p. 151.—Absinthium vulgare. Ray's Syn. p. 188.—Gray's Nat. Arr. v. ii. p. 451.—Absinthium latifolium sive ponticum, Johnson's Gerarde. p. 1096.

Fig. 1. Involucrum.-Fig. 2. Corolla,-Fig. 3. A separate Floret.-Fig. 4. Stamens and Pistil .- Fig. 5. Germen, Style, and Stigmas .- Fig. 7. Receptacle and

^{*} From Artemis, the DIANA of the Greeks; or, from Artemisia, wife of MAUSOLUS, King of Caria. † See f. 91, n. +. ‡ See f. 36, n. ‡. § See f. 27, a. | See f. 36, a.

LOCALITIES. - In waste ground, old stone-pits, and about villages; frequent. Perennial.—Flowers in August, and September.

Root woody, branched at the crown, furnished with numerous fibres below. Stems numerous, a foot or more high, somewhat tufted, branched, striated, leafy, whitish, with very short down. Leaves alternate, numerous, doubly plunatifid, with broadish, blunt, entire segments, clothed, like every other part of the herb, with close, silky hoariness; lower ones on long petioles; upper on shorter, broader, somewhat winged ones. Flowers in numerous, aggregate, leafy clusters, stalked, drooping, hemispherical. Scales of the involucrum bluntly egg-shaped, green, cottony at the back, the edges membranous; florets numerous, pale yellow, or buff coloured. Style large, very deeply cloven. Receptacle convex. clothed with fine upright hairs.

Sir J. E. Smith, in English Flora, mentions a variety having been found at Gamlingay, near Cambridge, in which the leaves that accompanied the flowers were much larger and broader than usual, and most of them undivided.

Wormwood is a native of almost every part of Europe; it is one of those domestic plants, which, associated with mallow, muqwort, hemlock, dock, &c. would seem to follow the footsteps of man, thriving amidst dust and rubbish, and to be found wherever a few miserable hovels are creeted. RAMOND and DE CANDOLLE observed several of these species among the ruins of cottages where shepherds had once lived, high on the Pyrennees; and some years ago Mr. WINCH remarked the same circumstance in the Highlands of Scotland. "The constant appearance of these weeds about towns and villages," says Mr. WINCH, in his Essay on the Geographical Distribution of Plants, &c. (2nd ed.) p. 20, " is a curious and inexplicable phenomenon, for no one ever cultivated such plants for utility, much less for ornament."

The leaves and flowers of Wormwood are intensely bitter, so as to become a proverb. They are employed in some parts of Wales as a substitute for hops; also laid in drawers and chests to drive away insects from clothes. A considerable quantity of essential oil rises from this herb in distillation, which is used both externally and internally to destroy worms. The leaves, put into sour beer, soon remove the ascescency. They resist putrefaction, and are therefore a principal ingredient in antiseptic fomentations. vegetable alkali of the shops has been usually procured from this herb, and called Salt of Wormwood, but it retains none of is peculiar qualities.

Dr. STOKES says, that the plant steeped in boiling water, and repeatedly applied to a bruise, will remove the pain in a short time, and prevent the swelling and discoloration of the part .- Turkeys are fond of the plant, but scarcely an animal besides .- Livia Absinthii, and the rare and elegant Plume-moth, Pterophorus spilodaetylus, are found upon it.

The trivial name of this plant, (Absinthium,) is derived from the Greek, and signifies, without sweetness. It is, therefore, very appropriately made the emblem of absence; which, according to LA FONTAIN, is the greatest of evils. See With. Bot. Arr., Thornton's Fam. Herb., &c.



LINNÆ'A.

Linnean Class and Order. DIDYNA'MIA*, ANGIOSPE'RMIA†. Natural Order. Caprifolia'Ceæ‡, Dec.; sect. Loniceree; Lindl. Syn. p. 131.; Introd. to Nat. Syst. of Bot. pp. 206 & 207.— Rich. by Macgilliv. p. 460.—Loud. Hort. Brit. p. 519.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 435.—Mack. Fl. Ilibern. p. 133.—Hook. Brit. Fl. (4th ed.) p. 409.—Caprifolia; sect. 1.; Juss. Gen. Pl. pp. 210 & 211.—Sm. Gram. of Bot. pp. 129 & 130.—Syringales; subord. Asteros.e; sect. Rubiacinæ; type, Caprifoliaceæ; Burn. Outl. of Bot. v. ii. pp. 900, 901, & 902.—Aggregatæ, Linnæus.

GEN. CHAR. Calyx (see fig. 1, b & c.) double, both permanent; the superior one (fig. 1, c.) of 1 sepal, in 5 deep, upright, spear-shaped, pointed, equal segments; the inferior one (fig. 1, b.) of 4 sepals, the 2 interior opposite, minute, pointed, smooth; the 2 exterior opposite, contrary to the interior and much larger, elliptical, concave, glandular, finally enlarged, and closed over the interior sepals and fruit. Corolla (fig. 2.) of 1 petal, bell-shaped; tube cylindrical, gradually dilated upwards, about twice the length of the superior calyx; limb divided into 5 deep, nearly equal, slightly spreading segments. Filaments (see figs. 3 & 4.) 4, awl-shaped, from the base of the corolla, shorter than its limb; the two upper ones the shortest. Anthers incumbent, versatile, oblong, compressed. Germen (fig. 1, d.) globular, below the calyx of the flower (fig. 1, c.), of 3 cells. Style (see fig. 1, e.) cylindrical, the length of the corolla. Stigma blunt. Fruit a dry, 3-celled berry, with one cell only bearing a perfect seed (see fig. 5).

The double calyx, the inner of which is superior, and 5-cleft; the bell-shaped corolla; and the dry 3-celled berry, with one cell only bearing a perfect seed; will distinguish this from other genera

in the same class and order.

Only one species known.

LINN'Æ'A BOREA'LIS. Northern Linnæa. Two-flowered Linnæa.

Spec. Char.

Engl Bot. t. 433.—Hook. Fl. Lond. t. 199.—Linn. Fl. Suec. (2nd ed.) p. 219. t. 1.; Spec. Pl. p. 880.; Fl. Lapp. (2nd ed.) p. 214. t. 12. f. 4.—Willd. Sp. Pl. v. iii. pt. 1. p. 340.—Sm. Fl. Brit. v. ii. p. 666.; Engl. Fl. v. iii. p. 142.—With. (7th edit.) v. iii. p. 741.—Gray's Nat. Arr. v. ii. p. 487.—Lindl. Syn. p. 122.—Hook. Flit. Fl. p. 291.—Macr. Man. Brit. Bot. p. 111.—Hook. Fl. Scot. p. 190.—Winch's Fl. of Northumb. and Durh. p. 42.—Don's Gen. Syst. of Gard and Bot. v. iii. p. 452. f. 82.—Dick. Fl. Abred. p. 44.—Iv. Lond. Fl. p. 261.—Linnæa, n. 299. Hall. Hist. v. i. p. 131, fide Smith.—Campanula Serpillifolia, Bauh. Pin. p. 93.

Localities.—In dry, stony, shady, mossy, fir woods on mountains; very rare.
—Northumberland; In an old fir plantation at Catcherside, four miles west of Wallington; growing with Trientalis europæa and Pyrola minor, its only

Fig. 1. A partial Flower-stalk, showing, a. the bractea or floral leaf; b. the outer calyx (or involucrum); c. the inner calyx; d. the germen; and c. the style and stigma.—Fig. 2. The Corolla.—Figs. 3 & 4. The stamens.—Fig. 5. Transverse section of the Germen, reduced from Flora Londinenses.

^{*} See folio 31, note +. + See folio 72, note +. + See folio 128, a.

known station in England; where it was first discovered by Miss Emma Tre-VELLYAN, of Wallington House.—SCOTLAND. Aberdeenshire; First found in an old fir-wood at Inglismaldie, in 1795, by Prof. James Beattie: Sir J. E. SMITH. Kingcusie, seven miles from Aberdeen: Mrs. Boswell. Crebstone, five miles from Aberdeen; and at Kemnay, sixteen miles N.W. from Aberdeen: Mr. Maughan. Within three miles of Alford, at Coreen, about twenty yards W. of the foot-path leading from Culhay to Dubstone, in the north opening of a deep dingle that passes through the top of the hill, amidst a tall, but rather open, growth of Calluna vulgaris, mingled with Arbutus Uva Ursi and Vacopen, growth of Callana vulgaris, mingled with Arbulus Uva Ursi and Vaccinium Vitis Idea: Dr. A. Murray.—Elginshire; Knock of Alves, near Elgin; Gordon Castle Woods: Rev. G. Gordon, in N. B. G.—Forfarshire; Glen Dole, in great plenty amongst the heather on the left side, between the station of Oxytropis campestris and Astragalus alpinus, but at a lower elevation: Mr. Watson, in N. B. G.—Inverness-shire, In a fir-wood, called Drummond, one mile to the S. W. of Inverness: Mr. Urquiart.—Perthshire; Fionlarig Woods near Killin: Mr. Watson, in N. B. G. Hill of Kinnoul, near Perth: Messrs. Brown.—Ross-shire; Near Brahan Castle: Mr. Urquiart. Perennial.—Flowers in May and June.

Stems trailing, thread-shaped, branched, woody; Root fibrous. the young shoots hairy and leafy, often reddish. Leaves opposite. on shortish petioles, roundish, or broadly egg-shaped, with 2 or 3 bluntish teeth on each side above the middle, the base quite entire; veiny, firm, slightly hairy, of a full green above, paler beneath. Stipulas none. Peduncles (flower-stalks) axillary, upright, about a finger's length, bearing each two elegant, drooping, flesh-coloured flowers at the apex, which are said to be very fragrant at night, with the scent of Meadow-sweet. A pair of very small leaves stand at the origin of the partial flower-stalks, or pedicels, and there is often a larger pair or two at the lower part of each peduncle. Corolla variegated internally with rose-colour and yellow.

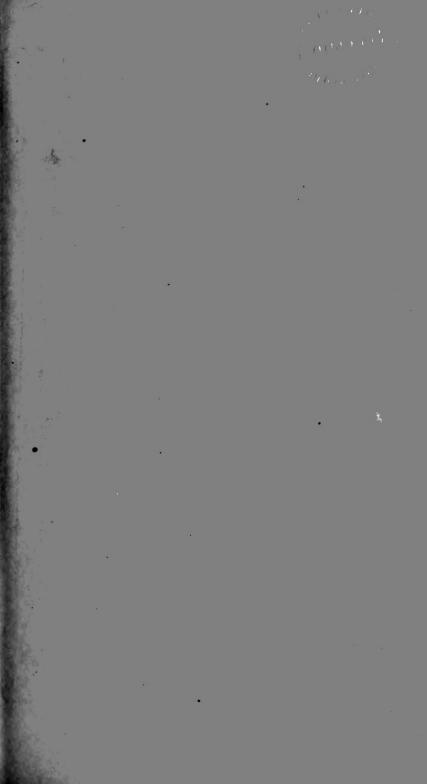
This beautiful little plant is a native of Lapland, Sweden, Norway, Russia, Germany, Switzerland, Savoy, Siberia, and N. America. It was not known to be indiginous to Britain till 1795, when it was first found as stated above in the localities.—The blossoms are gathered by the natives of Lapland for making an

localities.—I lie blossoms are gathered by the natives of Lapiand for making an infusion, which is employed in removing rheumatic disorders.

This "humble, despised, and neglected Lapland plant, flowering at an early age, was named by Dr. J. F. Gronovills, with the concurrence of Linkelius himself, in allusion to the unobtrusive liabits of the great philosopher, whose genius, immortal as it now appears, was long in obtaining due consideration. This celebrated and most enlightened reformer of Natural History, the son of a smaller between was horn at Rashult in 1707 and by averaginary merical properties. Swedish clergyman, was born at Rashult, in 1707, and by extraordinary merit and the publication of various elaborate performances, succeeded to the Professorship of Botany and Medicine at Upsal, received the honour of knighthood from his sovereign Adoleptus, and was ultimately elevated to the rank of nobility. He died in 1778, but not till his fame, established on an imperishable foundation, had extended throughout the civilized world." Sm. Eng. Fl.; With. Bot. Ar. &c.

The following Sonnet, addressed to this humble, but highly interesting plant, was written expressly for this work, by Mr. W. L. BEYNON, of Barton-under-Needwood, Staffordshire; and communicated to me by my respected friend Mr. T. S. ALLEN, of Oxford.

> LINNEA! shielding from inclement skies Thy loveliness in shades of thickest gloom ! What though by magie of thy name is brought No fair poetic vision to our eyes,-What though no bard of elder Greece or Rome Hath garlanded thy sweetness, -nor hath sought Minstrel of later days to wreath thy bloom, With glowing sentiment, or tender thought :-Thou hast a charm for me. 'Tis thine to bear To distant generations, fresh and fair, His name, whose meteor-genius gave to see, In all that tenant earth, or sea, or air, Designing wisdom and presiding care, The visible impress of the DEITY.





Jormentilla officinalis. Comm

Rusell. Del.

TORMENTI'LLA*.

Linnean Class and Order. ICOSA'NDRIAT, POLYGY'NIA.

Natural Order. Rosa'ce. ‡, Juss. Gen. Pl. p. 334.—Sm. Gram. of Bot. p. 171.—Lindl. Syn. p. 88.; Introd. to Nat. Syst. of Bot. p. 81.—Rich. by Macgilliv. p. 528.—Loud. Hort. Brit. p. 512.; Arbor, et Frutic. Brit. v. ii. p. 670.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 523.—Mack. Fl. Hiber. p. 85.—Hook. Brit. Fl. (41h ed.) p. 404.—Rosales; sect. Rosinæ; subsect. Rosianæ; type, Rosaceæ; subtype, Fragaridæ; Burn. Outl. of Bot. v. ii. pp. 614, 683, 699, & 700.—Senticosæ, Linn.

GEN. CHAR. Calyx (see fig. 1.) inferior, permanent, of 1 sepal, in 8 deep segments; the 4 outer ones alternate with the inner, and narrowest. Corolla (see fig. 2.) of 4 inversely heart-shaped, spreading petals, which are opposite to the outer segments of the calyx, and attached by their very short claws to its rim. Filaments (see fig. 4.) 16 or more, awl-shaped, upright, attached to the rim of the calyx, not half the length of the corolla. Anthers roundish, upright, of 2 cells, bursting lengthwise. Germens (see fig. 1.) superior, about 8, roundish, small, smooth, collected into a round head. Styles (see fig. 5.) thread-shaped, short, upright, one to each germen, lateral, deciduous. Stigmas blunt. Secds (nuts) egg-shaped, naked, very obscurely and partially wrinkled, smooth, placed upon a small, depressed, densely hairy, dry, permanent receptacle.

Distinguished from other genera, in the same class and order, by the 8-cleft calyx; the 4-petalled corolla; the naked, smooth, beardless seeds; and the small, dry receptacle.

It differs from *Potentilla*, with which some authors unite it, only in the number of the parts of the flower (see folio 313).

Two species British.

TORMENTI'LLA OFFICINA'LIS. Officinal Tormentil. Common Tormentil. Septfoil.

SPEC. CHAR. Stem ascending, branched. Leaves ternate, all sessile; leaflets spear-shaped, deeply serrated. Stipulas cut.

Engl. Bot. t. 863.—Curt. Fl. Lond. t. 337.—Sm. Fl. Brit. v. ii. p. 552.; Engl. Fl. v. ii. p. 427.—With. (7th ed.) v. iii. p. 636.—Hook, Brit. Fl. p. 253.—Davies' Welsh. Bot. p. 51.—Purt. Midl. Fl. v. i. p. 240.—Relh. Fl. Cant. (3rd edit.) p. 206.—Hook. Fl. Scot. p. 164.—Johnst. Fl. Berw. v. i. p. 116.—Winch's Fl. of Northumb. and Durh. p. 35.—Walker's Fl. of Oxf. p. 145.—Dick. Fl. Abred. p. 41.—Irv. Lond. Fl. p. 189.—Luxf. Reig. Fl. p. 45.—Cow. Fl. Guide, p. 51.—Mack. Cat. Pl. Irel. p. 50.; Fl. Hibern. p. 94.—Tormentilla erecta, Linn. Sp. Pl. p. 716.—Huds. Fl. Angl. (2nd edit.) p. 225.—Willd. Sp. Pl. v. ii. pt. Ir. p. 1112.—Light. Fl. Scot. v. i. p. 272.—Relli Fl. Cant. (1st edit.) p. 198.—Woodv. Medical Bot. v. i. p. 27. t. 9.—Thornt. Fam. Herb. p. 503, with a figure.—Tormentilla, Ray's Syn. p. 257.—Johns. Ger. p. 992.—Potentilla Tormentilla,

Fig. 1. Calyx and Germens.—Fig. 2. Corolla.—Fig. 3. A Petal.—Fig. 4. Calyx, Stamens, and Pistils.—Fig. 5. Germen, Style, and Stigma.—Fig. 6. Seed.

^{*} From tormina, the dysentery, in the cure of which it was employed on account of its astringent qualities. Hooker.

+ See folio 100, note +.

\$\frac{1}{2}\$ See folio 313, \$\alpha\$.

Sibth. Fl. Oxon. p. 162.—Abbot's Fl. Bedf, p. 114.—Grev. Fl. Edin. p. 116.—Lindl. Syn. p 97.—Bab. Fl. Bath. p. 15.—Macr. Man. Brit. Bot. pp. 68 & 69.—Potentilla officinalis, Gray's Nat. Arr. v. ii. p. 583.—Fl. Devon. pp. 88 & 172.

LOCALITIES .- In barren pastures, moors, and heathy places; frequent.

Perennial.-Flowers in June, July, and August.

Root thick and woody, varying both in size and shape, brown on the outside, reddish within. Stems many, from 6 inches to a foot or more long, weak, slender, and wiry, more or less branehed, often procumbent, though usually supporting themselves on neighbouring bushes. Leaves ternate, nearly sessile, somewhat hairy; dark green above, paler beneath; leaflets oblong, pointed, deeply and regularly serrated. Stipulas rather large, deeply eleft into two, three, or more lobes, and making the leaves appear quinate at first sight. Flowers small, on long, slender, hairy, axillary and terminal, pedicels. Calyx ribbed, hairy. Petals usually 4, of a fine yellow colour, with a faint tinge of orange at the base, their claws very short. Stamens about 16 or 18. Pistils from 8 to 16. Germens smooth. Style thread-shaped, inserted into the side of the germen above the base. Seeds few, wrinkled in the upper part. Receptacle small, thickly elothed with fine transparent hairs about the length of the germens.—Sometimes the ealyx varies with ten segments, and the eorolla with five petals, when it becomes difficult to distinguish it from Potentilla, but the number 4, and its multiples, usually predominates in the flowers of this genus.

Sir J. E. SMITH informs us, that "the late Miss JOHNES, of Ilafod, gathered the Tormentil in Cardiganshire, with double blossoms,

like little yellow roses."

The roots of this species rank with the strongest vegetable astringents, and as such have a place in the modern practice of physic. They are used in the Hebrides and Orkneys to tan leather, for which purpose they are said to be superior even to oak-bark; one pound and a half of the roots being equal to seven pounds of ordinary tan. In Lapland its root is chewed along with the inner bark of the Alder, and the saliva thus impregnated is applied to leather, to dye it of a red colour. Thus their harness, reins, girdles, gloves, &c. are tanned. According to the observations of Linneus, in his "Book of Simples," asserts, on the authority of the Norfolk shepherds, that Tormentil in pastures prevents that very destructive disease, the rot in sheep.

TO VEGETATION.

"Painter of Landscapes! Vegetation, hail!
Dearly I love thee in thy every hue;
Whether thy pencil, in the mead and dale,
Tinges the flowers with yellow, white, or blue,
To deck thy emerald mantle; or in groves
Of thickest foliage waves the darkest green;
Or in Carnation, Rose, and Tulip, loves
To make them each appear the garden's queen:
I court thee, too, where Furze and Heath-flowers grow
In the rude forest, and the desart wild,
And, oftentimes, to trace thy footsteps go
To rocks and caves, where sunbeam seldom smiled;
For there the Moss and Liverwort can tell
The searching magic of thy potent spell."

R. MILLHOUSE.



HU'MULUS*.

Linnean Class and Order. DIE'CIAT, PENTA'NDRIA.

Natural Order. URTI'CEÆ, Lindl. Syn. p. 218.; Introduct. to Nat. Syst. of Bot. p. 93.—Rich. by Macgilliv. p. 540.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 232.—Hook. Brit. Fl. (4th ed.) p. 419.—URTICÆ, Juss. Gen. Pl. p. 400.—Sm. Gr. Bot. p. 188.—QUERNEALES; sect. URTICINÆ; type, URTICACEÆ; subtype, CANNABIDÆ; Burn. Outl. of Bot. v. ii. pp. 523, 541, and 560.—SCABRIDÆ, Linn.

GEN. CHAR. Sterile Flowers (see figs. 1 & 2). Calyx (see f. 2.) of 5 oblong, concave, blunt sepals. Corolla none. Filaments (see fig. 2.) 5, hair-like, very short. Anthers vertical, oblong, of 2 cells, opening by 2 terminal pores (see fig. 3). Fertile Flowers (see f. 4.) in a lax, membranous cathin. Scales numerous, imbricated, concave, entire, single-flowered (see f. 5.), permanent. Corolla none. Germen (see figs. 5 & 6.) superior, minute, oblong. Styles (see figs. 5 & 6.) 2, awl-shaped, spreading, downy. Stigmas simple. Seed (fig. 7.) tunicated, attached to the base of each enlarged, membranous, dry scale of the cathin or cone. Embryo spiral.

The sterile flowers of a single perianth of 5 leaves; and the fertile flowers in a lax, membranous cone, of large, concave, entire, single-flowered scales; will distinguish this genus from others in

the same class and order.

Only one species known.

HU'MULUS LU'PULUS . Common Hop §.

SPEC. CHAR.

Engl. Bot. t. 427.—Linn, Sp. Pl. p. 1457.—Huds. Fl. Angl. (2nd ed.) p. 433.—Willd, Sp. Pl. v. iv. pt. II. p. 769.—Sm. Fl. Brit. v. iii. p. 1077.; Engl. Fl. v. iv. p. 240.—Willd, Sp. Pl. v. iv. p. 350.—Lindl, Syn. p. 219.—Hook, Brit. Fl. p. 436.—Macr. Man. Brit. Bot. p. 206.—Lightf. Fl. Scot. v. ii. p. 615.—Bryant's Flora Diætetica, p. 66.—Sibth. Fl. Oxon. p. 90.—Abb. Fl. Bedf. p. 214.—Thorn. Fam. Herb. p. 816, with a figure.—Davies' Welsh Bot. p. 94.—Purt. Midl. Fl. v. ii. p. 475.—Relh. Fl. Cant. (3rd ed.) p. 407.—Hook. Fl. Scot. p. 288.—Grev. Fl. Edin. p. 209.—Fl. Devon. pp. 159 & 136.—Winch's Fl. of Northumb. and Durh. p. 64.—Burnett's Outl. of Bot. v. ii. p. 560. paragr. 1647—1650.—Walker's Fl. of Oxf. p. 295.—Baxt. Lib. of Agricul. & Horticul. Knowl. (2nd ed.) p. 325.—Loud. Encycl. of Gard. (new edit.) p. 855. paragr. 4351.; Encycl. of Agricul. (2nd edit.) p. 924. paragr. 5997, with a figure.—Bab. Fl. Bath. p. 45.—Irv. Lond. Fl. p. 119.—Luxf. Reig. Fl. p. 84.—Cow. Fl. Guide, p. 34.—Mack. Cat. of Pl. of Irel. p. 86.; Fl. Hibern. p. 233.—Lupulus communis, Gray's Nat. Arr. v. ii. p. 252.—Lupulus mas et fæmina, Ray's Syn. p. 137.—Lupus salictarius, Johns Ger. p. 885.

LOCALITIES.—In thickets and hedges, especially on a calcareous or loamy soil; frequent.

Perennial.-Flowers in July and August.

Figs. 1 & 2. Sterile Flowers.—Fig. 3. A single Stamen.—Fig. 4. A Catkin of Fertile Flowers.—Fig. 5. A separate Fertile Flower.—Fig. 6. Germen, Styles, and Stigmas, with the Tunic.—Fig. 7. Seed.—Figs. 3 & 6, magnified.

^{*} From humus; rich soil or mould, in which the plant flourishes. Hooker. + See folio 143, note +.

Lupulus is a corruption of the old name, Lupus Salictarius, the Willow-wolf, as it was formerly called on account of its growing amongst osiers, to which, by twining round, overbearing and choking them, it became as destructive as the wolf to the flock.

§ From the Anglo-Saxon hoppan, to climb.

Root moderately creeping, branched. Stems herbaceous, weak and twining, not climbing by means of tendrils, but ascending trees, shrubs, or poles by their own spiral form, which is always according to the apparent motion of the sun, or from left to right, supposing the observer in the centre; these stems are many feet long, branched, leafy, angular, often twisted, hollow, and rough with small hooked prickles. Leaves opposite, on longish prickly petioles, heart-shaped, pointed, serrated, either undivided, or 3-lobed, sometimes 5-lobed, very rough on both sides with minute points. Stipulas large, membranous, reflexed, between the petioles. Flowers greenish-yellow, pendulous; the sterile ones in compound, axillary panicles (see fig. 1.); the fertile ones on a distinct plant from the sterile ones, egg-shaped, in pendulous, cone-like catkins (see f. 4).

The Hop plant is a native of most parts of Europe, also of Japan. The young shoots, when they have risen 3 or 4 inches from the root, are gathered and eaten early in the Spring, boiled like asparagus, to which they are very little inferior; they are occasionally sold in the market, under the name of Hop-tops. From the stems of the Hop a strong cloth is made in Sweden, and they are said to contain one of the very best materials for making all kinds of paper. A decoction of the roots, from 1 to 2 ounces; or an extract of them, to the quantity of 20 or 30 grains, is said to be sudorific, and to answer the purposes of Sarsaparilla.—Horses, cows, goats, sheep, and swine, eat the plant.

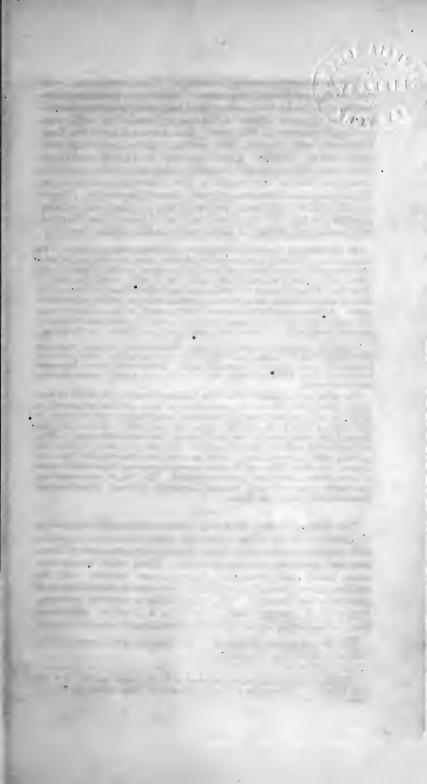
Papilio Io, Papilio C. album, Phalæno Humuli, and Phalæna rostralis, live upon it; and it is often much injured by the Honey-dew, which is the excrement of a small green fly, (Aphis Humuli). A very small fungus, Erysiphe macularis (Hop Mildew), Hook. Brit. Fl. v. ii. pt. 11. p. 325, is often parasitical on the leaves.

The Hops of Commerce are the ripe catkins or cones of the fertile flowers of this plant, their use for the preservation of beer, and the culture of the plant, are said to have been first introduced into England from Flanders, in the reign of Henry the VIIIth, about the year 1524. Before that time Ground-Ivy, called also Ale-hoof, or Tun-hoof (Glechoma hederacea, t. 136) was generally used for preserving beer; but now all public brewers are enjoined under a severe penalty to use no other bitter than Hops for their malt liquors. A pillow filled with Hops is reported to produce comfortable repose in cases where opiates have been unsuccessful. The Hop is now extensively cultivated in some parts of England, especially in Kent, Worcestershire, Herefordshire, Sussex, and Essex.*

The Natural Order, URTICE, consists of dicotyledonous trees, or shrubs, or herbs, whose leaves are either alternate or opposite; with membranous stipulas. Their flowers are monocious or diocious, and apetalous, (without a corolla). Their calyx is membranous, lobed, and permanent; their stamens definite, with the anthers curved inwards in estivation, but curving backwards with elasticity when bursting. The ovary, which is superior, is simple, with a single upright ovule. The fruit is a simple, indehiscent nut, surrounded by the calyx, which is either membranous or fleshy.

The British genera belonging to this order are Parietaria, t. 224; Urtica, t. 298; and Humulus, t. 342.

^{*} Mr. E. J. Lance has lately published a Work, under the title of "The Hop Farmer." It contains a complete account of Hop culture, its History, Laws, Uses, &c.





TRIENTA'LIS.

Linnean Class and Order. HEPTA'NDRIA+, MONOGY'NIA.

Natural Order. Primula'ce.#, Vent.—Lindl. Syn. p. 182.; Introd. to Nat. Syst. of Bot. p. 225.—Rich. by Macgilliv. p. 431.—Loud. Hort. Brit. p. 529.—Mack. Fl. Hib. p. 192.—Hook. Brit. Fl. (4th edit.) p. 415.—Lysimachiæ, sect. l. Juss. Gen. Pl. p. 95.—Sm. Gr. of Bot. p. 95.—Syringales; subord. Primulosæ; sect. Primulinæ; type, Primulaceæ; subty. Primulidæ; Burn. Outl. of Bot. v. ii. pp. 900, 958, 1020, 1024, & 1025.—Rotaceæ, Linn.

GEN. CHAR. Calyx (fig. 1.; and fig. 2, a.) inferior, of 7 awl-shaped, pointed, spreading, permanent sepals. Corolla (see fig. 2, b.) of 1 petal, wheel-shaped, in 7 deep, spreading, elliptic-spear-shaped, nearly equal, segments, alternate with the sepals, very slightly connected. Filaments 7, hair-like, spreading, the length of the calyx, shorter than the corolla, inserted into the base of each segment. Anthers terminal, oblong, recurved. Germen (fig. 3.) globose, superior. Style (see fig. 3.) cylindrical, rather swelling upwards, the length of the stamens. Stigma blunt. Capsule globose, of 1 cell, and 7 elliptic-oblong valves (see fig. 4.), rarely fewer, shorter than the calyx, with blunt, recurved points. Seeds (see figs. 4, 5, & 6.) few, roundish, somewhat angular at the inner side, each invested with a lax, white, membranous, reticulated tunic, and all together covering the large, central, globose, cellular receptacle (see fig. 7).

The parts of fructification were observed by LINNEUS to vary

occasionally as to number. SMITH.

The calyx of 7 sepals; the corolla in 7 deep, equal and flat segments; the 7-valved capsule; and the tunicated (coated) seeds; will distinguish this from other genera in the same class and order.

One species British.

TRIENTA'LIS EUROPÆ'A. European Chickweed Wintergreen.

SPEC. CHAR. Leaves inversely egg-oblong; the lowermost very

Engl. Bot. t. 15.—Hook. Fl. Lnnd. t. 161.—Fl. Dan. t. 84.—Linn. Sp. Pl. p. 488.; Fl. Suec. (2nd ed.) p. 122.; Fl. Lapp. (2nd ed.) p. 109.—Huds. Fl. Angl. (2nd ed.) p. 160.—Willd. Sp. Pl. v. ii. pt. p. 282.—Sm. Fl. Brit. v. i. p. 406.; Engl. Fl. v. ii. p. 208.—With. (7th ed.) v. ii. p. 466.—Gray's Nat. Arr. v. ii. p. 301.—Lindl. Syn. p. 185.—Hook. Brit. Fl. p. 173.—Maer. Man. Brit. Bnt. p. 190.—Lightf. Fl. Scot. v. i. p. 194.—Hook. Fl. Scot. p. 115.—Johnst. Fl. of Berw. v. ii. p. 279.—Winch's Fl. of Northumb and Durh. p. 24.—Dick. Fl. Abred. p. 35.—Irv. Lond. Fl. p. 242.—Herba Trientdlis, Bauh. Hist. v. iii. pp. 536 and 537, with a figure.—Alsinanthemos, Ray's Syn. p. 286.

+ The 7th class in the artificial System of Linneus; it contains those plants which have perfect flowers, with 7 stamens in each.

\$ See folio 295, a.

Fig. 1. Calyx.—Fig. 2. A Flower; a. the calyx; b. the corolla.—Fig. 3. Germen, Style, and Stigma.—Fig. 4. A Capsule, with the valves separated, and reflexed.—Fig. 5. Two of the Seeds.—Fig. 6. A Seed, magnified.—Fig. 7. Receptacle, and reflexed valves of the Capsule.

[•] From triens, the third part of any thing, usually of a foot measure. A name horrowed by LINNEUS from JOHN BAUHIN, who calls this pretty little plant Herba Trientalis, alluding to its humble stature. SMITH.

Locallies.—Woods and tinfy heaths in mountainous countries. In the North of England, but very rate.—Durham; Allum Works near Catleson Gisborough: Mr. Whothell. Waskerly Park, near Wolsingham: Mr. Thommill. Near Butsfield and Spring-houses: N. J. Winch, Esq. On the wooded and rocky hill above Hepburn, at Chillingham, plentiful; and on Hedgehope, about half way to the summit: Dr. G. Jonnston.—Northumberland. On moors a mile and a half east of Rothbury: N. J. Winch, Esq. Beyond the Roman Wall, five miles noth of Hexham, and on moors west of Harbottle: T. Willisel, in Ray's Syn. In a fir plantation at Catcherside, four miles west of Wallington, on moors about Green Leighton, and by Rothley: Miss Emma Trevelyan. In the plantation surrounding Brisile Tower: Mr. F. Mixisty. Near Bassington, three miles west of Alnwick: Miss Pringle. Abundant in a moorish pasture above Twizell House; Rugley Dean; and on high grounds near Ross Castle, Chillingham: N. J. Winch, Esq.—Yorksh. At the eastern extremity of Kumbles Meer near Helwick, among rushes: T. Willied, in Ray's Syn. Moors near Helmsley: Mr. Teesdale. Boggy pasture near Pateley Bridge, and near Ripon: Mr. Brunton. Dallow Gill: Rev. J. Dalton. Moors near Harrowgate, and above Kirby-Moorside: Rev. A reunracon Pierson. Near Scarborough: Rev. A. Bloxam. Wondy bank near the Race Ground, Scalborough: Rev. A. Bloxam. Wondy bank near the Race Ground, Scalborough: E. F. Witts, Esq. On the top of Swill Hill, 1300 feet of elevation, four niles from Halifax, on the road to Keighley, where it has probably altained its southern limit in Great Britain: N. B. G.—SCOTLAND. Aberdeensh. Stocket Moor; Hazelhead Woods; Hills at Nigz, and numerous other woods and moors; abundant: Mr. Dickie, in Fl. Abred. Castleton, on the 100 of a house; Braemar Moors; and Avon Hills: Mr. H. C. Watson, in N. B. G.—Forfarsh. On the summit of the Clova Mountains: Mr. Bone. On hillocks in Glen Clova; and ascending to the table-lands above Glen Dole: N. B. G.—Forfarsh. On the summit of the Clova Mountains: Mr. D

Perennial.—Flowers in May and June.

Root slightly tuberous, somewhat creeping. Stems from 3 to 6 inches high, simple, upright, roundish, with 2 or 3 small, distant, bluntish leaves, and from 4 to 8 terminal, larger ones, which are inversely egg-shaped, pointed, smooth, and tapering to a stalk at the base. Peduncles (flower-stalks) from 1 to 4, from the axils of the upper leaves, 2 or 3 inches long, upright, slender, naked, simple, single-flowered. Flowers very elegant, of a brilliant white, tinged with pink, upright, drooping during the night and in rainy weather. Anthers and Stigma often reddish. Seeds from 8 to 10, brown, minutely dotted, and covered with a white membranous beautifully reticulated tunic.

This elegant plant is a native of the northern parts of Eorope, and Siberia, in woods on the sides of mountains, and on turfy heaths. Linners appears to have been quite enchanted with it, from its being the only Lapland (as it is also the only British) genus of the seventh class of his artificial System; the number of its staniens, however, are liable to vary, and in the latter part of the season they seldom exceed six in each flower, but whatever their number may be, that of the divisions of the calyx and the corolla, and of the valves of the capsule, always correspond with it. The same great Naturalist remarks, that when growing in dry places, the plant has always the apices of the petals acute; and that these are, on the contrary, obtuse, when it inhabits

a moist situation.

The Drawing for the accompanying Plate was made from a plant kindly communicated to me by W. Borner, Esq.





Hordeum C. Mathemather & se.

HO'RDEUM*.

Linnean Class and Order. TRIA'NDRIA+, DIGY'NIA.

Natural Order. Grami'neæ, Juss. Gen. Pl. p. 28.—Sm. Gram. of Bot. p. 86.; Engl. Fl. v. i. p. 71.—Lindl. Syn. p. 293.; Introd. to Nat. Syst. of Bot. p. 292.—Rich. by Macgilliv. p. 393.—Loud. Hort. Brit. p. 542.—Mack. Fl. Hibern. p. 294.—Hook. Brit. Fl. (4th ed.) p. 426.—Gramina, Linn.—Graminales; sect. Triticinæ; type, Hordeaceæ; Burn. Outl. of Bot. v. i. pp. 359 & 362.

GEN. CHAR. Spike imbricated. Rachis (common receptacle) many-flowered, jointed, elongated, toothed alternately at each side, the intermediate spaces flattened, and bordered. Spikelets 1-flowered, 3 at each tooth of the rachis (see fig. 1.), not all perfect, unequally stalked. Calyx (see fig. 2, a.) of 2 rather slender, variously shaped, pointed or awned, parallel, upright glumes. Corolla (see fig. 2.) of 2 paleæ, the outer (fig. 2, b.) egg-shaped, concave, angular, terminating in a long, straight, rough awn, rising above the awn of the calyx; inner palea (fig. 2, c.) smaller, spear-shaped, flat, inflexed at the edges, pointed. Nectary (fig. 3.) of 2 pointed scales. Filaments (see fig. 2.) 3, hair-like, shorter than lese fig. 4.) turbinate. Styles (see fig. 4.) very short. Stigmas (see fig. 4.) teathered along the upper side. Sced (fig. 5.) egg-oblong, pointed at each end, with a narrow chaunel along the upper side, firmly coated with both the paleæ.

The single-flowered *spikelets*, 3 together at each joint of the rachis, the central *one* only perfect; and the *calyx* of 2 parallel glumes; will distinguish this from other genera with a spiked inflorescence, in the same class and order.

Three species British.

HO'RDEUM MURI'NUM. Wall Barley. Way-side Barley. Mouse Barley. Way Bennet. Way Bent. Wild Rie. Rie-grass. Squirrel-tail Grass.

SHEC. CHAR. Glumes of the intermediate floret strap-spear-shaped, fringed; those of the lateral florets bristle-like, rough.

Engl Bot. t. 1971.—Curt. Fl. Lond. t. 325.—Knapp's Gram. Brit. t. 104.—Host. Gram. Austr. v. i. p. 25. t. 32.—Mart. Fl. Rust. t. 43.—Graves' Brit. Grasses, t. 125.—Linn. Sp. Pl. p. 126.—Huds. Fl. Augl. (2nd ed.) p. 56.—Willd. Sp. Pl. v. i. pt. 1. p. 474.—Sin. Fl. Brit. v. i. p. 155.; Engl. Fl. v. i. p. 179.—Willd. Sp. Pl. v. i. pt. 1. p. 474.—Sin. Fl. Brit. v. i. p. 155.; Engl. Fl. v. i. p. 179.—With. (7th ed.) v. ii. p. 202.—Lindl. Syn. p. 296.—Hook. Brit. Fl. p. 53.—Macr. Man. Brit. Bot. p. 276.—Lightf. Fl. Scot. v. i. p. 108.—Sibth. Fl. Oxon. p. 51.—Abbot's Fl. Bedf. p. 26.—Curt. Obs. on Brit. Grasses, (5th ed.) p. 29.—Davies' Welsh Bot. p. 13.—Purt. Midl. Fl. v. i. p. 88.—Relh. Fl. Cant. (3rd ed.) p. 50.—Hook. Fl. Scot. p. 46.—Grev. Fl. Edin. p. 32.—Sincl. Hort. Gram. Woburn. pp. 27 & 268.—Fl. Devon. pp. 24 & 121.—Johnst. Fl. Berw. v. i. p. 31.—Winch's Fl. Northumb. and Durh. p. 8.—Walker's Fl. of Oxford, p. 32.—Bab. Fl. Bath.

Fig. 1. A set of 3 Spikelets.—Fig. 2. A single Sterile Spikelet, or Floret; a. the two glumes of the calyx; b. the outer palea of the corolla; c. the inner palea of ditto.—Fig. 3. The Nectary.—Fig. 4. The Germen, Styles, and Stigmas.—Fig. 5. A Seed.—All slightly magnified.

^{*} From horreo, to set up as bristles or hair through anger or fear; in allusion to the ears of barley being conspicuously awned. Dr. WITHERING. + See folio 56, note t.

p. 60.—Mur. Northern Fl. p. 81.—Dick. Fl. Abred. p. 25.—Irv. Lond. Fl. p. 101.—Luxf. Reig. Fl. p. 10.—Cow. Fl. Guide, p. 34.—Mack. Cat. Pl. of Irel. p. 16.; Fl. Ilhern. p. 314.—Hordeum spurium, Johnson's Gerarde, p. 73.—Zeocriton murinum, Gray's Nat. Arr. v. ii. p. 90.—Gramen secalinum et sacale sylvestre, Ray's Syn. p. 391.

LOCALITIES. -On waste ground, by walls, and road-sides; very common in ENGLAND, more rare in SCOTLAND.

Annual.—Flowers from June to August.

Root fibrous. Stems (culms) numerous, from a foot to 18 inches high, round, smooth, leafy, nearly upright, except at the base, where they are usually more or less decumbent and bent at the joints. Leaves strap-shaped, tapering to a point, flat, roughish, with a few scattered hairs on both surfaces, and two small membranous appendages at the base, which embrace the stem; sheaths long, striated, smooth. Stipula (ligula) short and blunt. Spikes 2 or 3 inches long, very dense and uniform, of a lightish-green colour, 2-ranked, brittle. Florets 3 together at each joint of the rachis or common stalk, the two outside ones sterile, the intermediate one fertile; the larger palea or valve in all the florets awned. Each sterile floret has a calyx of 2 bristle-shaped glumes, one of which (that next to the fertile floret) is fringed at the base, the other rough with small teeth. The fertile or perfect floret is considerably the largest, and has a calvx of two strap-spear-shaped glumes on the outside of the larger awned palea, both of which are fringed with spreading hairs; this floret has also a third glume, which is very narrow, resembling an awn, placed at the base of the inner palea, not fringed, and shorter than the floret.

Hordeum murinum is distinguished from any other species of the genus by the two glumes of the calyx of the intermediate floret being fringed with spreading hairs.

This Grass is of no agricultural use; Mr. SINCLAIR says he never could observe it eaten by cattle of any description, not even by the half-starved animals which feed by road-sides, where it is often the most prevalent grass. However, Dr. WITHERING says that sheep and horses eat it, and that it feeds the Brown Moth (Phalana granella), and the Barley Fly (Musca frit), the latter very destructive to the barley in Sweden, by getting into the ear; but, according to KIRBY and SPENCE, not yet observed in England. Mr. KNAPP observes, that "in some places, Hordeum murinum occasionally intrudes in the upland grass-fields, and the hay in such cases is almost rejected by cattle, as the sharp spines that constitute the beard attach themselves to the mouth of the beast, causing irritation and pain, and teeze the animal instead of nourishing him; of this disadvantage we are sensible, of its virtues we remain in ignorance, and though it loves the neighbourhood and association of man, yet it seems in no instance deserving his protection."

The Squirrel-tail Grass, which is often so pernicious in the hay in some parts of the Isle of Thanet, is said to be the Hordeum maritimum, and not this species.

FYRATE SAVES



Reben rubrum Common Currant . h

RIBES*.

Linnean Class and Order. PENTA'NDRIA † MONOGY'NIA. Natural Order. GROSSULA'CER, Mirb.—Lindl. Syn. p. 106; Introd. to Nat. Syst. of Bot. p. 54.-Mack. Fl. Hibern. p. 108.-Loud. Arb. Brit. p. 967.—GROSSULARIE'A, De Cand.—Loud. Hort. Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 177.—Hook. Brit. Fl. (4th edit.) p. 408.—Ribesiæ, Rich. by Macgilliv. p. 516.—CACTI, Juss. Gen. Pl. p. 310.—Sm. Gram. of Bot. p. 164.—Rosales; subord. Myrtosæ; sect. Grossulinæ; type, GROSSULACEE; Burn. Outl. of Bot. v. ii. pp. 614, 617, 740, and 744.—POMACEÆ, Linn.

GEN. CHAR. Calyx (see fig. 1, a.) superior, of 1 sepal, tumid; limb in 5 deep, regular, spreading, coloured segments. Corolla (see fig. 1, b.b.) of 5, small, obtuse, upright petals, attached to the rim of the calyx, and alternating with its segments. Filaments (see fig. 1, c. and fig. 3.) 5, short, awl-shaped, upright, from the rim of the calyx, and alternate with the petals. Anthers 2-celled, opening lengthwise on the inside; except in the varieties of R. rubrum, in which they burst laterally and transversely. Germen (see fig. 4.) inferior roundish. Style 1, cloven. Stigma blunt. Berry (see fig. 5.) crowned with the remains of the flower, 1-celled, with 2 lateral, opposite, longitudinal receptacles, the cell filled with pulp. Seeds (see fig. 6.) numerous. roundish, slightly compressed, or angular, each coated with mucilaginous pulp, and suspended by a long filiform funiculus. Albumen horny, conforming to the seed, white. Embryo minute, excentrical, with the radical next the hilum.

The 5-cleft calyx, bearing the petals and the stamens; the divided style; and the 1-celled, many-seeded berry; will distinguish this from other genera, with a superior, polypetalous corolla, in the same class and order.

Six species British.

RIBES RUBRUM. Red Currant . Common Currant. Garnet Berries.

SPEC. CHAR. Without prickles. Clusters smooth. Bracteas Calyx nearly flat, its segments obtuse. shorter than the flowers.

Petals inversely heart-shaped.

Engl. Bot. t. 1289.—Woodv. Med. Bot. v. ii. p. 207. t. 74.—Linn. Sp. Pl. p. 290.—Huds. Fl. Angl. (2nd edit.) p. 99.—Willd. Sp. Pl. v. i. pt. 11. p. 1153.—Sm. Fl. Brit. v. i. p. 263.; Engl. Fl. v. i. p. 330.—With. (7th ed.) v. ii. p. 333.—Gray's Nat. Arr. v. ii. p. 548.—Lindl. Syn. p. 106.—Hook, Brit. Fl. p. 108.—Maer. Man. Brit. Bot. p. 90.—Lightf. Fl. Scot. v. i. p. 146.—Sibth. Fl. Oxon. p. 84.—Relb. Fl. Cant. (3rd ed.) p. 100.—Purt. Midl. Fl. v. iii. p. 19.—Hook. Fl. Scot. p. 81.—Fl. Devon. pp. 42 & 168.—Winch's Fl. of Northumb. & Durh. p. 16.—Don's Gen. Syst. of Grayd & Bot. v. iii. p. 187.—Loud. Arb. of Erritic Brit. p. 67.—Walker's Syst. of Grayd & Bot. v. iii. p. 187.—Loud. Arb. of Erritic Brit. p. 67.—Walker's Syst. of Chard & Bot. v. iii. p. 187.—Loud. Arb. of Erritic Brit. p. 67.—Walker's Syst. of Chard & Bot. v. iii. p. 187.—Loud. Arb. of Erritic Brit. p. 67.—Walker's Chard. Syst. of Gard. & Bot. v. iii. p. 187 .- Loud. Arb. et Frutic. Brit. p. 977 .- Walker's

‡ From the similitude of the fruit to that of the Corinth Grape, the small grape of Zante, or the common grocers' Corinths or currants. MARTYN.

Fig. 1. A Flower; a. calyx; b.b. two of the Petals; c. a Stamen.—Fig. 2. A single Petal.—Fig. 3. A single Stamen.—Fig. 4. Germen, Style, and Stigma.—Fig. 5. A Berry.—Fig. 6. A Seed.—All, except fig. 5, a little magnified.

^{*} The name of an acid plant mentioned by the Arabian physicians, which has been discovered to be the Rheum Ribes, Don. + See f. 48, n. +.

Fl. of Oxf. p. 66.—Perry's Pl. Varv. Selectæ, p. 22.—Bab. Fl. Bath. p. 18.—Irv. Lond. Fl. p. 198.—Mack. Catal. of Pl. of Irel. p. 25; Fl. Hibern. p. 108.—Ribes vulgaris fructu rubro, Ray's Syn. p. 456.—Johnson's Gerarde, p. 1593.

LOCALITIES.—In mountainous woods, especially in the North of England, and in Scotland.—Oxfordshire; Magdalen College Water-Walks: Dr. Sibhotover Plantations: W. B.—Berksh. In a hedge near Childswell Farm, by the road from S. Hinksey; and on pollard willows in Bagley Wood: W. B.—Cambridgesh. Linton; between Bourn-bridge and Abington, in an island a little above the Sluice: Rev. R. Relhan.—Cumberland; Hedges near Whinside Hill, Ullock Moss, and elsewhere about Keswick, perhaps native: H. C. Watson, Esq. in N. B. G. Eden, in Whinfield Park and Culgaith: N. B. G.—Devon; Baglor Wood, Ilsington; Banks of the river Culm: Rev. W. Hinks. Lizwell Wood, Widdecome in the Moor: Rev. A. Neck. Banks of the river at North Bovey: Fl. Devon. Hedges about Barnstable: N. B. G. Woods and hedges near Bampton: Miss Bliss.—Durham; Woods and banks of rivulets; in Teesdale, near Eglestone: Rev. J. Hanriman.—Kent; High and Harrison's Rocks: Fl. Ton.—Leicestersh. Woods near Stanton: Bobart, in Ray's Syn.—Norfolk; Not uncommonly naturalized: Hist. Yarm. Stow Wood: Miss Bell, in N. B. G.—Northumbl. In Hulne Woods, near Alnwick Mr. J. Davison.—Somerset; Naturalized in hedges, not unfrequently: C. C. Babington, Esq.—Warreicksh. Banks of the Avon near Warwick: Rev. W. T. Bbee. Side of the Avon between Warwick and Emscote: Mr. W. G. Penray. In the hedge on the right hand side of the foot-path going from Rugby, between the Mill and Newbold-upon-Avon: 1831, W. B.—Worcestersh. In the deep dingle of a wood at Hailstone Hill, near Suckley; also in a ravine at Clifton-on-Teme, between that place and St. Catherine's Well. In the deep glen of a wood at Lickey?): E. Lees, Esq. in N. B. G.—Yorksh. Banks of the Swale, Richmond: J. Ward, in N. B. G. Mill Island; Birkbeck's Weir; Wood near Clayton's Bidge; and Settle: N. J. Wiscu, Esq.—SCOTLAND. Argylesh. Islay, among brushwood on the banks of the Sound: Lichtfoor.—Berwicksh. In deans, on the sites of deserted mills and cottages: Dr. Jonnstone, in Fl. Berw.—Edinburghsh. Woods on Corstorphine Hill, and other

Shrub.—Flowers in April and May.

Stem bushy, upright, smooth, with a deciduous cuticle. Leaves alternate, on long, fringed petioles, bluntly 3- or 5-lobed, doubly serrated, smooth above, somewhat hairy beneath, usually rather downy when young. Racemes drooping, simple, stalked. Bracteas egg-shaped, small, solitary under each pedicel, often with a pair of small ones near the flower. Calyx yellowish-green, cup-shaped, nearly flat, segments blunt. Petals very small, inversely heartshaped, yellowish. Berries globular, quite smooth, red and shining, each crowned with the withered flowers.

This species is a native of Europe and Siberia, in woods; and throughout Canada to the mouth of the Mackenzie. In a wild state the berries are red, but cultivation has produced white and pale red berries. Merret, in his Pinax, (1666,) mentions a small-fituited variety as growing at Wimbleton in Surrey, and many places of Lancashire. It is said also (see Ray's Syn.) to have been found since, plentifully, in Wimbleton Park, by Mr. J. Shenard. In the 4th edit. of the Brit. Flora, Sir W. J. Hooken has united R. petræum, and R. spicatum, with this species.

The fruit, when cultivated, is much esteemed for dessert, and for making tarts, wine, preserves, &c. According to Withering, the juice forms an agreeable acid to punch. If equal weights of picked currants and pure sugar be put over the fire, the liquor that separates spontaneously is a most agreeable jelly. The Medicinal qualities of red currants are similar to those of other subacid fruits, allaying thirst, lessening an increased secretion of the bile, and correcting a pu-

trid and scorbutic state of the fluids.

Dothidea ribesia, Pers.; Sphæria cinnabarina, Tope.; and Sp. coronata; Hoffm.; are parasitical on dead branches of currant trees about Oxford. The two former very common, the latter rather rare.

The Natural Order, GROSSULACEA, consists only of Ribes, consequently the characters of the Order are the same as those of the

Con Marine



CLINOPO'DIUM *.

Linnean Class and Order. DIDYNA'MIA †, GYMNOSPE'RMIA ‡. Natural Order. LABIA'TÆ §, Juss. Gen. Pl. p. 110.—Sm. Gram. of Bot. p. 99.; Engl. Fl. v. iii. p. 63.—Bentham, in Bot. Regist. (1829).—Lindl. Syn. p. 196.; Introd. to Nat. Syst. of Bot. p. 239.—Rich. by Macgilliv. p. 439.—Loud. Hort. Brit. p. 528.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 665.—Mack Fl. Hibern. p. 209.—Verticillatæ of Linnæus.—Syringales; subord. Primulose; sect. Menthinæ; type, Menthaceæ of Labiatæ; subtype, Nepetidæ; Burn. Outl. of Bot. v. ii. pp. 900, 958, 968 & 973.

GEN. CHAR. Whorls many-flowered, with numerous strapshaped bracteas (see fig. 1.), forming a sort of involucrum. Calyx (see fig. 1.) of 1 sepal, inferior, tubular, 13-nerved, nearly equal at the base, often curved, 2-lipped; upper lip broadest, ascending, in 3 deep, pointed, equal segments; lower lip incurved, in 2 deep, slender segments; throat closed with converging hairs. Corolla (fig. 2.) ringent; tube cylindrical, rather short, throat longer and wider; upper lip nearly flat, blunt, slightly notched; lower lip in 3 deep lobes, the middle one very broad, notched. Filaments (see fig. 3.) 4, didynamous, all directed to the upper lip, cylindrical, converging, shorter than the corolla. Anthers (see figs. 2 & 3.) 2-lobed, each pair meeting so as to form a cross. Germen (see fig. 4.) 4-lobed, small. Style (fig. 4.) thread-shaped, equal to the stamens. Stigma in 2 pointed lobes. Seeds 4, egg-shaped, in the bottom of the closed tumid calyx.

The 2-lipped, many-ribbed calyx; and the flowers with numerous strap-shaped bracteas; will distinguish this from other genera in the same class and order.

One species British.

CLINOPO'DIUM VULGARE. Common Wild Basil. Stone Basil. Basil-Weed.

Spec. Char. Leaves egg-shaped, obscurely serrated. Whorls hairy. Bracteas bristle-shaped. Pedicels branched.

Engl. Bot. t. 1401.—Linn. Sp. Pl. p. 821.—Huds. Fl. Angl. (2nd ed.) p. 261.—Willd. Sp. Pl. v. iii. pt. r. p. 131.—Sm. Fl. Brit. v. ii. p. 638.; Engl. Fl. v. iii. p. 105.—With. (7th edit.) v. iii. p. 718.—Gray's Nat. Arr. v. ii. p. 385.—Lindl. Syn. p. 206.—Hook. Brit. Fl. p. 280.—Lightf. Fl. Scot. v. ii. p. 385.—Lindl. Syn. p. 206.—Hook. Brit. Fl. p. 280.—Lightf. Fl. Scot. v. ii. p. 316.—Siblh. Fl. Oxon. p. 188.—Abbot's Fl. Bedf. p. 132.—Davies' Welsh Bot. p. 58.—Purt. Midl. Fl. v. i. p. 282.—Relh. Fl. Cant. (3rd ed.) p. 245.—Hook. Fl. Scot p. 184.—Grev. Fl. Edin. p. 133.—Fl. Devon. pp. 100 & 146.—Johnst. Fl. Berw. v. i. p. 134.—Winch's Fl. of Northumbl. and Duth. p. 40.—Walker's Fl. of Oxf. pp. 170.—Jacob's West Devon. and Cornwall Flora.—Bab. Fl. Bath. p. 40.—Dick. Fl. Abred. p. 44.—Irv. Lond. Fl. p. 134.—Luxf. Reig. Fl. p. 53.—Cow. Fl. Guide, p. 27.—Mack. Catal Pl. Irel. p. 56.; Fl. Hibern. p. 220.—Clinopodium origano simile, Ray's Syn. p. 239.—Melissa clinopodium, Benth. Lab. p. 392. fide Don.—Lindl. Syn. (2nd edit.) p. 202.—Don's Gen Syst. of Gard. and Bot. v. iv. p. 783.—Mac. Man. Brit. Bot. p. 182.—Acynos, Johns. Gerarde, p. 675.

Fig. 1. Calyx, subtended by 3 bracteas.—Fig. 2. Corolla.—Fig. 3 Stamens and Pistil, with the upper lip of the corolla.—Fig. 4. Germen, Style, and 2-lobed Stigma.

^{*} From kline, Gr. a couch; and podeon, Gr. a little foot; the flowers growing in whorls, one above another, like the old-fashioned turned feet of bedsteads. WITHERING.

⁺ See folio 31, note +. ! Ibid, note +. ? See folio 94, a

Localities.—In dry pastures, about hedges, and by road-sides, on a gravell or chalky soil; not uncommon.

Perennial.—Flowers in August.

Root fibrous. Stems several, ascending, from 1 to 2 feet high, somewhat wavy, 4-angled, clothed all over, as is every other part of the plant, with long spreading hairs. Leaves opposite, on shortish petioles, egg-shaped, bluntish, about an inch long, with a few shallow serratures; very regularly and distinctly veined, the ribs on the under surface rather prominent, and clothed with copious bristly hairs. Whorls few, equal, globose, of many, usually more than forty, light; purple, not unhandsome flowers, on forked, or branched, hairy pedicels, accompanied by narrow, awl-shaped, hairy bracteas (see fig. 1.); one of the whorls always terminating the stems and branches. Calyx 13-nerved, very hairy, 2-lipped, the lower lip of 2 teeth. Corolla prominent, twice as long as the calyx, of a purplish-red colour, with a yellow hairy protuberance at each side of its mouth; the middle lobe of the lower lip very broad, and notched.

The smell of the plant is somewhat aromatic, and not unpleasant. It is of no particular use. Goats and sheep will eat it; horses refuse it.

This species is said to be native throughout Europe and Middle Asia, in woods, liedges, and waysides; from Scotland and Sweden to Spain, Sicily, Greece, and Caucasus; and North America; but probably introduced from Europe to the latter country.

"Go forth," says an elegant writer in *The Amulet*, for 1832, p. 154.—
"Go forth into the fields and among the green hedges; walk abroad into the meadows, and ramble over heaths; climb the steep mountains, and dive into the deep valleys; scramble among the bristly thickets, or totter among the perpendicular precipices; and what will you find there? Flowers—flowers—flowers! What can they want there? What can they do there? How did they get there? What are they but the manifestation that the Creator of the Universe is a more glorious and benevolent Being than political economists, utilitarians, philosophers, and *id genus omne?*

"Flowers—of all things created most innocently simple and most superbly complex; playthings for childhood, ornaments of the grave, and companions of the cold corpse in the coffin! Flowers—beloved by the wandering idiot, and studied by the deep-thinking man of science! Flowers—that of perishing things are most perishing, yet of all earthly things are the most heavenly! Flowers—that, in the simplicity of their frailty, seem to beg leave to be, and that occupy, with blushing modesty, the clefts, and corners, and spare nooks of earth, shrinking from the many-trodden path, and not encroaching on the walks of man; retiring from the multitudinous city, and only then, when man has deserted the habitation he has raised, silently, and as if long waiting for implied permission, creeping over the grey wall and making ruin beautiful! Flowers—that unceasingly expand to heaven their grateful, and to man, their cheerful looks: partners of human joy, soothers of human sorrow; fit emblems of the victor's triumphs, of the young bride's blushes; welcome to crowded halls and graceful upon solitary graves! Flowers—that, by the unchangeableness of their beauty, bring back the past with delightful and living intensity of recollection! Flowers—over which innocence sheds the tear of joy; and penitence heaves the sigh of regret, thinking of the innocence that has been! Flowers are for the young and for the old; for the grave and for the gay; for the living and for the dead; for all but the guilty, and for them when they are penitent. Flowers are, in the volume of nature, what the expression, Goo is love,' is in the volume of revelation. They tell man of the paternal character of the Deity."

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Toriles Anthriscus. Upright Hedge-Paroley O CHAMMERTO BRENT BRENT BRENT BORNE STEEL

TORI'LIS *.

Linnean Class and Order. PENTA'NDRIA † DIGY'NIA.

Natural Order. Umbelli'feræ‡, Juss. Gen. Pl. p. 218.—Sm. Gram. of Bot. p. 132.—Lindl. Syn. p. 111.; Introd. to Nat. Syst. of Bot. p. 4.—Rich. by Macgilliv. p. 463.—Loud. Hort Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 235.—Mack. Fl. Hibern. p. 113.—Umbellatæ, Linn.—Rosales; sect. Angelicinæ; type, Angelicaceæ; subtype, Caucalidæ; Burn.

Outl. of Bot. v. ii. pp. 614, 770, 773, & 781.

GEN. CHAR. Flowers all perfect and fertile, except from occasional abortion, slightly irregular. Calyx (see fig. 2.) superior, of 5, triangular-spear-shaped, pointed, nearly equal, permanent teeth. Corolla (see fig. 1.) superior, of 5, inversely heart-shaped petals, with an inflexed point; outer ones of the umbellules larger than the central ones, and bifid. Filaments (see fig. 1.) 5, hair-like, spreading, longer or shorter than the corolla. Anthers roundish. Germen (see fig. 2.) inferior, egg-shaped, bristly. Floral Receptacle scarcely perceptible. Styles (see figs. 2 & 3.) 2, awl-shaped, somewhat spreading, much shorter than the corolla, permanent, and subsequently elongated, very tunid at the base. Stigmas simple. Fruit (see fig. 3.) contracted at the sides. Carpels (Mericarps, Don, Seeds, Linn.) with 3 dorsal bristly ribs, and 2 in the inner face of the carpels (see fig. 4.); the interstices clothed with prickles, and having one vitta under each secondary rib below the prickles. Seed inflexed at the margin. Involucrum variable; the partial one (involucellum) many-leaved. Flowers white or pink.

The egg-shaped, beakless, somewhat laterally compressed, bristly fruit; the carpels with 3 dorsal bristly ribs, and 2 in the inner face of the carpels; and the secondary ribs beset with copious prickles, which occupy the whole furrows, having one vitta under each secondary rib below the prickles; will distinguish this from

other genera in the same class and order.

Three species British.

TORI'LIS ANTHRI'SCUS. Upright Hedge-Parsley. Red

Hedge-Parsley.

SPEC. CHAR. Stem upright, branched. Leaves bipinnate; leaflets oblong, deeply cut and serrated. Umbels terminal, of from 5 to 10 close rays. Involucrums of several small awl-shaped leaves. Fruit covered with incurved bristles.

Gært. v. i. p. 83.—Sm. Eugl. Fl. v. ii. p. 43.—With. (7th edit.) v. ii. p. 366.—Lind. Syn. p. 114.—Hook. Brit. Fl. p. 115.—Macr. Man. Brit. Bot. p. 105.—Grev. Fl. Edin. p. 70.—Fl. Devon. pp. 47 & 165.—Johnst. Fl. Berw. v. i. p. 67.—Winch's Fl. of Northumb. and Durh. p. 18.—Walker's Fl. of Oxf. p. 75.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 361.—Bab. Fl. Bath. p. 19.—Dick. Fl. Abred. p. 31.—Irv. Lond. Fl. p. 195.—Luxf. Reig. Fl. p. 26.—Cow. Fl. Guide, p. 51.—Mack. Fl. Hibern. p. 114.—Torilis rubella, Gray's Nat. Arr. v. ii. p. 499.—Caucalis Anthriscus, Engl. Bot. t. 987.—Curt. Fl. Lond. t. .—Huds. Fl. Angl. (2nd ed.)

Fig. 1. A Flower.—Fig. 2. Germen.—Fig. 3. Fruit.—Fig. 4. A Carpel divided transversely.—All, more or less, magnified.

^{*} Name of doubtful origin, perhaps, as SMITH suggests, from toreuo, Gr. to carve or emboss; in allusion to the appearance of the fruit. Hooker.

† See folio 48, note †. ‡ See folio 235, a.

p. 114.—Willd. Sp. Pl. pt. 11. p. 1388.—Sm. Fl. Brit. v. i. p. 298.—Lightf. Fl. Seot. v. i. p. 155.—Sibth. Fl. Oxon. p. 93.—Abbot's Fl. Bedf. p. 59.—Davies' Welsh Bot. p. 27.—Purt. Midl. Fl. v. i. p. 145.—Relh. Fl. Cant. (3rded.) p. 112.—Ilook. Fl. Seot. p. 87.—Maek. Catal. Pl. Irel. p. 27.—Caucalis minor, flosculis rubentibus, Johns. Ger. p. 1022.—Ray's Syn. p. 219.—Tordylium Anthriscus, Linn. Sp. Pl. p. 346.—Jacq. Fl. Austr. v. iii. t. 261.

LOCALITIES.-In hedges, banks by road-sides, and on the borders of fields.

Very common.

Annual.—Flowers in July and August.

Root slender, tapering, fibrous. Stem from 2 to 4 feet, or more, high, upright, stiff, solid, round, striated, a little crooked, purplish, rough with minute, rigid bristles, which are pressed downwards to the stem, and scarcely visible. Branches alternate, nearly upright. Leaves alternate, on channelled, somewhat sheathing petioles, twice pinnate; leaslets pinnatifid, sharply cut, and rough with very minute hairs; the terminal leaflet of the upper leaves very long, strap-spear-shaped. Umbels lateral and terminal, on long upright stalks, of from 7 to 10 rough rays, but little spreading; the bristles on these, on the involucrums, and on the leaves, are pressed upwards, contrary to those on the stem and branches. Umbellules close and flat. General and Partial Involucrums of several small, awl-shaped leaves, often pressed close to the rays, and then not readily perceptible. Flowers small, mostly of a pinkish colour, sometimes white. Calyx teeth nearly equal, smooth. Petals unequal, inversely heart-shaped. Fruit small, egg-shaped, faintly tinged with purple, very rough with incurved bristles, placed in rows, between which are 3 dark green, rather prominent ribs.

This plant is a common weed in hedges and on borders of fields in most other parts of Europe, as well as in Britain; and also in

Caucasus, in similar situations.

Dr. WITHERING says, horses are extremely fond of it.—The upright stem, and compound umbels, of this species, will distinguish it from *Torilis nodosa*; and the general involucrum of more than two leaves, from *T. infesta*; the latter species is chiefly found among corn, never in hedges; *T. Anthriscus* seldom anywhere but in hedges and among bushes.

HEDGE BLOSSOMS.

"When my path led through gardens of myrtles and roses,
And rich flowers of every hue,
How I lov'd the green lane, where fair nature discloses
Her charms wildest, where Hedge Blossoms blew.

Oh! how tame seem'd each beauty—how languid the culture
Of the loveliest flower that grew,
Oh! how poor seem'd each seent—unrefreshing the verdure,
To the fragrance the *Hedge Blossom* threw!

As the years roll'd away, when vicissitude's sickle,
And the rough blast of baneful mildew
Had swept over the garden; and destiny fiekle
Left the vale, where But Hedge Blossoms blew!

Wav'ring Faney aroused, stole the feature of sadness,
(As the Sun steals dawn's moment of dew)
From the valley—and with a dark shadow of sadness
Hung the wild, where the Hedge Blossom blew!"

M. K. HART.





Bromes mollin Soft Brome-grafs. 8

BRO'MUS *.

Linnean Class and Order. TRIA'NDRIA +, DIGY'NIA.

Natural Order. Grami'neæ, Juss. Gen. Pl. p. 28.—Sm. Gram. of Bot. p. 86.; Engl. Fl. v. i. p. 71.—Lind. Syn. p. 293.; Introd. to Nat. Syst. of Bot. p. 292.—Rich. by Macgilliv. p. 393.—Loud. Hort. Brit. p. 542.—Mack. Fl. llibern. p. 294.—Hook. Brit. Fl. (4th edit.) p. 426.—Gramina, Linn.—Graminales; sect. Festucinæ; type, Avenaceæ, Burn. Outl. of Bot. v. i. pp. 359 and 369.

GEN. CHAR. Panicle loose. Spikelets (see fig. 2.) egg-shaped, or oblong, compressed, of many alternate, imbricated, 2-ranked, awned, perfect florets. Calyx (fig. 1.) of 2 unequal, egg-shaped, or spear-shaped, pointed, concave glumes, shorter than the lower florets. Corolla (fig. 3.) of 2 unequal palca (valves); the outer elliptical, rarely spear-shaped, concave, scarcely compressed, more or less ribbed, longer than the calyx, flat, or a little inflexed, at the edges; cloven at the summit; awned at the back just below the summit; awn tapering, wavy, direct, generally as long as the palea, or longer, decurrent at the base; inner palea nearly as long as the outer, but narrower, 2-ribbed, cloven or entire at the summit, its margins membranous, folded in at each rib, which is strongly fringed with rather distant bristles, curved upwards. I (fig. 4.) a deeply divided scale, or of 2 distinct entire ones. ments (see fig. 3.) 3, hair-like, shorter than the corolla, sometimes but two. Anthers generally short, pendulous, notched at each end. Germen (see fig. 5) egg-shaped. Styles (see fig. 5.) distant, lateral. Stigmas (see fig. 5.) densely feathery. Seed (fig. 6.) ellipticoblong, depressed, downy at the summit, concave or channelled on the upper side, which is united to the unchanged inner palea of the corolla, the other palea being usually loose.

The loose panicle; the calyx of 2 valves, containing many florets; and the corolla of 2 elliptical palex, the outer one awned below the bifid extremity; will distinguish this from other genera in the same class and order.

Twelve species British.

BRO'MUS MOLLIS. Soft Brome-grass. Lob-grass. Oat-grass. Spec. Char. Panicle upright, close, compound. Spikelets egg-shaped, somewhat compressed. Florets imbricated, compressed, pubescent. Awns straight, as long as the paleæ. Leaves and Sheaths very soft and downy.

Fig. 1 Calyx.—Fig. 2. A Spikelet; a. a. the 2 glumes of the Calyx.—Fig. 3. A Floret, showing the 2 Paleæ, the Stamens, and the Pistils.—Fig. 4. Nectary.—Fig. 5. Germen, Styles, and Stigmas.—Fig. 6. A Seed.

^{*} From Bromos, Gr. a name given by the Greeks to a kind of oat; and that again from Broma, Gr. food. Hooker.

Engl. Bot. t. 1978.—Curt. Fl. Lond. t. .—Knapp's Gram. Brit. t. 77.—Mart. Fl. Rust. t. 99.—Host. Gram. Austr. v. i. p. 16. t. 19.—Grave's Monogr. on Brit. Grasses, t. 94.—Sincl. Hort. Gram. Wob. pp. 24 & 176, with a plate.—Schreb. Gram. v. i. p. 60. t. 6. f. 1 & 2 — Leers' Fl. Herb. p. 37. t. 11. f. 1.—Linn. Sp. Pl. p. 112.—Sm. in Trans. of Linn. Soc. v. iv. p. 284.—Willd. Sp. Pl. v. i. pt. r. p. 429.—Sm. Fl. Brit. v. i. p. 126; Engl. Fl. v. i. p. 153.—With. (7th edit.) v. ii. p. 187.—Gray's Nat. Arr. v. ii. p. 119.—Lindl. Syn. p. 311.—Hook. Brit. Fl. p. 49.—Macr. Man. Brit Bot. p. 273.—Lightf. Fl. Scot. v. i. p. 103.—Sibth. Fl. Oxon. p. 47.—Abbot's Fl. Bedf. p. 23.—Davies' Welsh Bot. p. 11.—Purt. Midl. Fl. v. i. p. 77.—Relli. Fl. Cant. (3rd ed.) p. 42.—Curt. on Brit. Grasses, (5th ed.) p. 21.—Salisb. Bot. Comp. v. ii. p. 5.—Hook. Fl. Scot. p. 41.—Grev. Fl. Edin. p. 28.—Fl. Devon. pp. 21 & 126.—Johnst. Fl. Berw. v. i. p. 27.—Winch's Fl. of Northumb. and Durh. p. 7.—Loudon's Mag. Nat. Hist. v. i. p. 382, with a figure.—Walker's Fl. of Oxf. p. 28.—Bab. Fl. Bah. p. 58.—Murr. North. Fl. p. 75.—Dick. Fl. Abred. p. 24.—Irv. Lond. Fl. p. 99.—Luxf. Reig. Fl. p. 9.—Cow. Fl. Guide, p. 24.—Mack. Catal. of Pl. Irel. p. 15. ; Fl. Hibern. p. 311.—Bromns polymorphus, var. a. Huds. Fl. Angl. (2nd edit.) p. 48.—B. hordeaceus, Linn. Sp. Pl. (1st edit.) p. 77.—Festuca avenacea hirsuta, paniculis minus sparsis, Ray's Syn. p. 413.

Localities.—In meadows, pastures, and fields, everywhere, as well as on waste ground, walls, and banks.

Biennial.—Flowers in June.

Root fibrous, branched and whitish. Culm upright, simple, striated, mostly smooth, with downy knots or joints, two feet or more high, in good ground, much more dwarf, scarcely 2 or 3 inches, in dry barren places *. Leaves and Sheaths very soft to the touch, hoary with fine short, dense hairs. Liquia (stipula) short, blunt, somewhat torn. Panicle 2 or 3 inches long, hoary and downy all over, a little spreading when in full flower, but otherwise upright and close; its branches half-whorled; the uppermost simple; some of the rest more or less subdivided; all angular and downy. Spikelets nearly upright, egg-shaped, pointed, a little compressed. Calyx downy, its glumes elliptical, pointed; the larger with 5 or 7 strong ribs, sometimes more; the smaller with three. Florets from 7 to 10, seldom fewer, downy, closely imbricated in every state, elliptical, concave and depressed, not at all cylindrical; the outer palea with 7 strong ribs, membranous at the margin, blunt and deeply cloven at the extremity, with a strong straight awn continued from the midrib, and about the length of the palea; inner palea very thin, and much narrower, entire, and strongly fringed. Styles distant. Seed large, oblong, flattened, united with both the paleæ.

This species of *Bromus* is very common in many of our rich meadows, but being an early grass it has generally shed its seed before the usual time of mowing, and as it produces but few root leaves, its crop of herbage is, consequently, very small, and of little value.

^{*} In this state it is the *Bromus nanus* of Weigel, *Observ. Bot.* p. 8. t. 1. f. 9. I have specimens of this variety, which I received, about four years ago, from the Rev. J. Jacob, LL. D. Author of the "Flora of West Devon and Cornwall," which are only two inches and a half high. In these specimens the culm, above the leaves, is strongly striated, and densely covered with deflexed hairs.

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Utricularia mulgaris. Greater Bladderwort. 4 01. Sakuro Del & Si Pub & by W. Bazzu Botanic Cardon Oxford 1839

UTRICULA'RIA*.

Linnean Class and Order. DIA'NDRIA +, MONOGY'NIA.

Natural Order. LENTIBULA'RIÆ, Rich.—Lindl. Syn. p. 186.; Introd. to Nat. Syst. of Bot. p. 226.—Rich. by Macgilliv. p. 432.— Loud. Hort. Brit. p. 529.-Mack. Fl. Hibern. p. 196.-Hook. Brit. Fl. (4th ed.) p. 415.—Lysimachiæ, sect. 3. Juss. Gen. Pl. pp. 95 and 97.—Sm. Gr. of Bot. p. 95.—Syringales; subord. Primu-LOSÆ; sect. MENTHINÆ; type, UTRICULARIACEÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, & 976.—CORYDALES, Linn.

GEN. CHAR. Calyx (fig. 1.) inferior, of 2, small, egg-shaped,

equal, permanent sepals. Corolla (fig. 2.) of 1 petal, ringent; upper lip blunt, upright; lower larger, with a prominent, heartshaped palate; spur (fig. 3.) single or double. Stamens (fig. 4.) 2, short, with small, cohering anthers. Germen (fig. 5.) globose. Style hair-like, the length of the calyx. Stigma 2-lipped. Capsule (figs. 6 & 7.) globose, of 1 cell. Seeds (figs. 8 & 9.) numerous, small, on a large, globular, central receptacle.

The calyx of 2 sepals; the inferior, monopetalous, personate, spurred corolla; and the 1-celled capsule; will distinguish this

from other genera in the same class and order.

Three species British.

UTRICULA'RIA VULGA'RIS. Common Bladder-wort. Hooded Milfoil.

SPEC. CHAR. Spur conical. Scape straight. Cluster somewhat corymbose; upper lip of the corolla as long as the projecting

palate. Leaves pinnato-multifid.

Engl. Bot. t. 253.—Fl. Dan. t. 138.—Linn. Sp. Pl. p. 26,—Huds. Fl. Angl. (2nd ed.) p. 8.—Willd. Sp. Pl. v. i. pt. 1. p. 112.—Sm. Fl. Brit. v. i. p. 28; Engl. Fl. v. i. p. 30,—With. (7th edit.) v. ii. p. 23.—Gray's Nat. Arr. v. ii. p. 316.—Lindl. Syn. p. 186.—Hooker's British Fl. p. 9.—Macr. Man. British Botany, p. 188.—Lightf. Fl. Scot. v. i. p. 77.—Sibthorp's Fl. Oxon. p. 7.—Abbot's Fl. Bedf. p. 5.—Annals of Botany, v. i. p. 138.; and v. ii. p. 391.—Davies' Welsh Bot. p. 4.—Purt. Midl. Fl. v. i. p. 55.—R.clh. Fl. Cant. (3rd edit.) p. 12.—Hook. Fl. Scot. p. 8.—Grev. Fl. Edin. p. 5.—Fl. Devon. pp. 4 & 142.—Johnston's Fl. of Berw. v. i. p. 8.—Winch's Fl. of Northumb. and Durh. p. 2.—Rev. G. E. Smith's Plants of S. Kent, p. 2.—Walker's Fl. of Oxf. p. 7.—Burn. Outl. of Bot. v. ii. p. 977, with a figure.—Perry's Pl. Varv. Selectæ, p. 3.—Mur. North. Fl. p. 18.—Dick. Fl. Abred. p. 20.—Irv. Lond. Fl. p. 131.—Mack. Catal. Pl. Irel. p. 9.; Fl. Hibern. p. 197.—Lentibularia, Ray's Syn. p. *286. Hibern. p. 197 .- Lentibularia, Ray's Syn. p. *286.

LOCALITIES -In deep pools, and watery ditches; frequent. - Oxfordshire; Ditch near the Canal, opposite the first draw-bridge beyond Heyfield's Hut: W. B. Otmoor: Dr. Sidthorp. Between Bainton and Burford: Rev. W. S. Rufforn.—Berks; In a ditch on the north side of the road just beyond Botley Bridge; ditches near the towing-path between Oxford and Iffley; also by the sides of the Devil's Back-bone going to South Hinksey; and in the pools on the south side of the Abingdon road, opposite the Paper-mill, just before you come to the road leading to Kennington; Sept. 1839: W. B.—Beds. Ditch in Bromham Parish: Rev. C. Abbot.—Cambridgesh. Paper-mills; Teversham Moor; Triplow Heath; Ely, &c.: Rev. R. Relhan.—Cheshire; Ponds in Mobberly:

Fig. 1. Calyx.—Fig. 2. Front view of Corolla.—Fig. 3. The Spur (reversed)—Fig. 4. Stamens.—Fig. 5. Germen, Style, and Stigma.—Fig. 6. Capsule.—Fig. 7. Vertical section of ditto, showing the Receptacle or Placenta.—Figs. 8 & 9. Seeds.— Fig. 10. A separate Leaf.—Fig. 11. One of the Bladders.—Figs. 5, 7, 9, and 11. a little magnified.

^{*} From utriculus, a little bladder.

HOLLAND'S Agri. Surv.—Cornwall; Between Rosmarran and Kenegie: Dr. FORBES.—Derbysh. Ponds at Swarkeston Bridge: Rev. A. BLOXAM.—Devon. Forbes.—Derbysh. Ponds at Swaikeston Bridge: Rev. A. Bloyam.—Devon. Bovey Heathfield; the Stover Canal Head; Ponds between Teignbridge and Kingsteignton; and in Powderham Marshes: Ft. Devon.—Durham; At Hell Kettles; Polam; near Dailington; and in the Lake at Hardwick, near Sedge-field: N. J. Winch, Esq.—Essex; In the great Fish-pond at Sir J. Tyrrer.'s seat called Heron-gate, near Thorndon: Mr. Hill, in Blacks. Sp. Boi. (1746.)—Kent; Dykes at Ham Ponds; Rev. G. Smith.—Lancash. Near Bootle, between Crosby and Formby, near Liverpool: Dr. Bostock. At Penketh: G. Crosfield, Esq.—Leicestersh. Ashby Canal, near Congestone: Rev. A. Blonam.—Middlesex; A bout Hornsey: Ft. Metr.—Norfolk; not unfrequent: Mr. Woodward.—Northumberl. At Piestwick Cair; N. J. Winch, Esq. In the Pond-field above Spindlestone: Dr. Johnston. In Newham Lough near Bamborough: Miss Pringle.—Staffordsh. Near Uttoxeter: G. Howitt, in N. B. G.—Suffolk; Not unfrequent: Mr. Woodward.—Warwicksh. In shallow water on Birmingham Heath (now drained): Dr. Withering. Canal opposite Mr. Walker's, between Rugby and Newbold-upon-Avon: Rev. A. Bloxam; 1837.—Yorksh. In the Great Bog on Blackmoor near Leeds: Mr. Dawson, in Blacks. Sp. Bot.—WALES. In Anglesey: Rev. H. Davies.—Frequent in SCOTLAND and IRELAND.

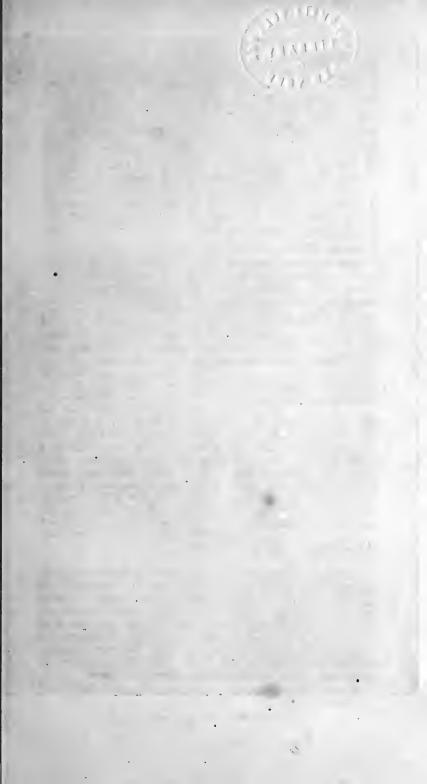
Perennial.——Flowers from June to September.

Perennial .--- Flowers from June to September.

Root very much branched. Stems floating horizontally in the water, cylindrical, frequently a foot or more long, branched, leafy. Leaves alternate, thrice pinnatifid, the segments numerous, thread-shaped or bristle-like, fringed at the margin, and, like the roots, bearing small, beautiful, reticulated bladders, which are pear-shaped, but somewhat compressed; with an aperture at the small end, from the edges of which arise three or four very slender fibres (see fig. 11). It is said that these bladders are at first filled with water, by which means the plant is kept at the bottom, until it is ready to flower, when the water gives place to air, and the plant rises to the surface, so that the flowers may unfold in the open air; but when the time of flowering is over, and the seeds are approaching to perfection, the bladders become again filled with water, the whole plant sinks to the bottom, and the seeds are thus sown in their most fitting soil. Scape upright, rising 5 or 6 inches above the surface of the water, and bearing from 4 to 8 flowers, with a small, spear-shaped bractea at the base of each peduncle. Calyx Corolla large, bright yellow, with purplish-red streaks; the palate projecting and closing the mouth. Spur bent downwards. The shoots are frequently terminated by gemmæ or buds, of the size of a pea to that of an hazel-nut, and having the appearance of a roundish mass of short hair or wool. This is now the case in most of the plants of this species, in the aquarium of the Oxford Garden. (October 15, 1839.)

The Natural Order, LENTIBULARIE, is composed of small, herbaceous, marsh plants, with undivided and all radical leaves; or aquatic plants with compound root-like leaves bearing bladders. The calyx is permanent and divided. The corolla monopetalous, irregular, 2-lipped, with a spur. The stamens, which are 2 in number, are inserted into the base of the corolla. The anthers are single. The ovary 1-celled. The style short. The stigma 2-lipped. And the capsule 1-celled, with a large central receptacle, bearing many sceds, which are very minute, and have no albumen.

The only British genera in this order are Pinguicula, t. 109. and Utricularia, t. 349.





C. Nathowa Del & Se.

POTAMOGE/TON *.

Linnean Class and Order. TETRA'NDRIA+, TETRAGY'NIA.

Natural Order. FLUVIA'LES, Vent .- Lindl. Syn. p. 248.; Intr. to Nat. Syst. of Bot. p. 289.—Loud. Hort. Brit. p. 541.—Mack. Fl. Hibern. p. 264.—NAIADES, Juss. Gen. Pl. p. 18.—Sm. Gram. of Bot. p. 66.—Rich. by Macgilliv. p. 387.—Hook. Brit. Fl. (4th ed.) p. 423.—INUNDATÆ, Linn.—ALISMACEÆ, De Cand.—JUNCALES; sect. NAYADINÆ; type, NAYADACEÆ; Burn. Outl. of Bot. v. i. pp. 403 & 413.

GEN. CHAR. Calyx none. Corolla (fig. 1.) inferior, of 4 concave, equal, incurved, deciduous petals, with claws about as long as Filaments (see figs. 2 & 3.) 4, sometimes more, flat, very short. Anthers (see figs. 2 & 3,) nearly sessile, oblong, 2-lobed. Germens (see fig. 4.) 4, alternate with the stamens. Styles generally none. Stigmas blunt, permanent. Seeds (see fig. 5.) 4, naked, roundish, tumid at the back; compressed or angular at the inner margin. Embryo (fig. 6.) curved. Flowers sessile upon a spike or spadix, which i sues from a sheathing bractea or spatha. Floating plants, with pellucid leaves.

The single perianth; and the 4 sessile, naked sceds; will distinguish this from other genera in the same class and order.

Fourteen species British.

POTAMOGE'TON NA'TANS. Floating Pond-weed. leaved Pond-weed. Sharp-fruited Pond-weed.

SPEC. CHAR. Lower leaves strap-shaped, membranous, or wanting; upper ones elliptical, roundish heart-shaped at the base, leathery, floating; all on long stalks, many-nerved, and distinctly cellular. Fruit keeled.

Eagl. Bot. t. 1822.—Fl. Dan. t. 1025.—L'na. Sp. Pl. p. 182.—Huds. Fl. Angl. (2nd edit.) p. 74.—Willd. Sp. Pl. v. i. pi. 71. —Sm. Fl. B-'i. v. i. p. 193.; Engl. Fl. v. i. p. 228.—With. (7th ed.) v. ii. p. 255.—Lindl. Syn. p. 250.—Hook. Brit. Fl. p. 76.—Macr. Man. Brit. Bot. pp. 223 & 224.—Lightf. Fl. Scot. v. i. p. 121.—Sibdi. Fl. Oxon. p. 64.—Abbot's Fl. Bedf. p. 37.—Device's Welsh Bot. p. 17.—Purt. Midl. Fl. v. i. p. 104.—Relh. Fl. Cant. (3rd edit.) p. 67.—Hook. Fl. Scot. p. 57.—Grev. Fl. Edin. p. 40.—Fl. Devon. pp. 30 & 113.—Johnston's Fl. of Berw. v. i. p. 41.—Winch's Fl. of Northumb. and Durli. p. 10.—Walker's Fl. of Oxf. p. 43.—Bab. Fl. Bath. p. 47.—Murr. North. Fl. p. 105.—Dick. Fl. Abred. p. 27.—Irv. Lond. Fl. p. 85.—Luxf. Reig. Fl. p. 15.—Mack. Catal. Pl. Irel. p. 19.; Fl. Hibern. p. 267.—Potamogiton natans, Gray's Nat. Arr. v. ii. p. 33.—Potamogiton rotundifolium, Rey's Syn. p. 148.—Potamogeiton latifolium, Johnson's Gerarde, p. 821. son's Gerarde, p. 821.

LOCALITIES .- In watery ditches, ponds, and slow rivers; common.

Perennial.—Flowers in July and August.

Fig. 1. A single Flower,-Fig. 2. Stamens and Pistils,-Fig. 3. A separate Stamen .- Fig. 4. Germens and Pistils .- Fig. 5. Fruit or Seed .- Fig. 6. Embryo.

[•] From potamos, Gr. a river; and geiton, Gr. a neighbour. All the species grow in water; and often present as beautiful an appearance in clear streams and ponds, as the Fuci do in the ocean. They protect the spawn of fish, and harbour innumerable aquatic insects, their roots and seeds affording food to water birds. Sir W. J. HOOKER.—CHAMISSO and SCHLECHTENDAL have well illustrated this genus; see Linnæa, v. ii. p. 159. + See folio 16, note +.

Root creeping extensively in the mud. Stems cylindrical, varying in length, often many feet, much branched, leafy. leaves opaque, leathery, smooth, deep green or tinged with brown, 2 or 3 inches long, elliptical, often heart-shaped at the base, with about 7 main ribs, and several intermediate smaller ones; floating on the surface of the water like those of the water-lilies; involute in the bud. Lower leaves submersed, alternate, strap-shaped, acute, very narrow, tapering gradually into a footstalk (petiole); these submersed leaves are frequently wholly wanting. (footstalks) of the floating leaves various in length, semicylindrical, very vascular. Stipulas (see section at the bottom of the plate) intrafoliaceous, large, spear-shaped, pointed, concaye, pale and membranous, nearly as long as the petioles. Spikes simple, raised an inch or two above the water, each on a long, thick, axillary stalk, which is suddenly contracted at the bottom of the spike. Flowers a little distant, quite sessile, rather numerous, vertical, olive-green. Anthers yellow, with whitish pollen.

The leaves floating upon the surface of the water afford an agreeable shade to fish, and are the habitation and food of *Phalana Potamogata*. The roots are sometimes eaten in the wilds of Siberia by men, but in more temperate regions they are fed on only by swans, who devour them with avidity. Mr. Stackhouse says, their love of this plant is such, that a pair of them, by harassing it in search of its succulent roots during winter, almost destroyed it in the whole extent of nearly five acres of water, which at times had been completely matted over with it.

LINNAUS remarks, that when this species grows in water which is dried up in Summer, it surprisingly changes its appearance, becoming upright, and resembling a small *Plantago*. In this variety the stem is said to be but about four inches high. The sheaths of the peduncles and petioles less than half the length of their respective stalks. The leaves alternate, except the upper pair; the lower ones spear-shaped, on long petioles; and the upper ones oval, with shorter petioles. It flowers a month or six weeks earlier than the common plant.

The Natural Order, FLUVIALES, to which the present genus belongs, consists of monocotyledonous water plants, whose leaves are very vascular, with parallel veins. Their flowers are inconspicuous, perfect or monocious; and usually arranged in terminal spikes. The perianthium is composed of 2 or 4 pieces, often deciduous, rarely wanting. The stamens are definite, and hypogynous. The ovaries 1 or more, superior; with a simple stigma; and a solitary, pendulous ovule. The fruit is dry, 1-celled, 1-seeded, and indehiscent. The seed is pendulous; and the embryo without albumen, having a contrary direction to the seed, with a lateral cleft for the emission of the plumule.

This order contains the following British Genera. 1. Potamogeton, t. 350.—2. Zostera.—3. Ruppia.—4. Zannichellia, t. 164.



C.Natheres Del & Se

IBE'RIS *.

Linnean Class and Order. Tetradyna'mia†, Siliculo'sa‡.

Natural Order. Cruci'feræ§, Juss. Gen. Pl. p. 237.—Sm. Gram. of Bot. p. 138.; Engl. Fl. v. iii. p. 153.—Rich. by Macgilliv. p. 498.—Cruciferæ; subord. Pleurorhizeæ||; tribe, Thlaspideæ; Lindl. Syn. pp. 20, 22, & 27.; Introd to Nat. Syst. of Bot. pp. 14 to 18.—Loud. Hort. Brit. pp. 498 & 499.; Mag. Nat. Hist. v. i. pp. 143 & 240.—Don's Gen. Syst. of Gard. and Bot. v. i. pp. 146 & 148.—Mack. Fl. Hibern. pt. 1. pp. 16.—Hook. Brit. Fl. (4th ed.) p. 397.—Rosales; subord. Rhæadosæ; sect. Rhæadinæ; type, Brassicaceæ; subtype, Arabidæ; Burn. Outl. of Bot. pp. 614, 784, 847, 854, & 856.—Siliquosæ, Linn.

GEN. CHAR. Calyx (see fig. 1.) inferior, equal at the base, of 4, egg-shaped, concave, equal, spreading, deciduous sepals. Corolla (see fig. 1.) of 4, inversely egg-shaped, undivided, spreading, unequal petals, with short claws (see fig. 3.); the two outermost (see fig. 1.) largest, equal to each other. Filaments (fig. 2.) 6, tetradynamous, about the length of the calyx, awl-shaped, distinct, simple. Anthers roundish. Germen (fig. 4.) almost circular, notched at the summit, compressed. Style (see fig. 4.) very short. Stigma blunt. Pouch (silicula) (fig. 5.) egg-shaped, transversely compressed, bordered, of 2 cells, cloven at the top into 2 acute lobes, between which stands the permanent, somewhat elongated, style; valves 2, distinct, boat-shaped, each with a dilated pointed keel (see fig. 6, c); partition (fig. 6, b.) elliptical, membranous, as wide as the valves. Sceds (fig. 6, a.) one in each cell, egg-shaped, pendulous. Cotyledons (see figs. 8 & 9.) egg-shaped, flat, accumbent (o=).

Distinguished from other genera, with accumbent cotyledons, in the same class and order, by the unequal petals; and the much compressed, egg-shaped, notched pouch, of 2, 1-seeded cells.

One species British.

IBE'RIS AMA'RA. Bitter Candy-tuft. White Candy-tuft. Clown's Mustard.

SPEC. CHAR. Herbaceous. Leaves spear-shaped, pointed, somewhat toothed, smooth. Flowers corymbose, finally raceinose.

Engl. Bot. t. 52.—Linn. Sp. Pl. p. 906.—Huds. Fl. Angl. (2nd ed.) p. 285.—Willd. Sp. Pl. v. iii. pt. 1, p. 456.—Sm. Fl. Brit. v. ii. p. 692.; Engl. Fl. v. iii. p. 181.—With. (7th edit.) v. iii. p. 765.—Gray's Nat. Arr. v. ii. p. 693.—Lindl. Syn. p. 28.—Hook. Brit. Fl. p. 296.—Macr. Man. Brit. Bot. p. 18.—Lightf. Fl. Scot. v. ii. p. 1136.—Sibth. Fl. Oxon. p. 201.—Davies' Welsh Bot. p. 63.—

Fig. 1. Calyx and Corolla.—Fig. 2. Stamens.—Fig. 3. A separate Petal.—Fig. 4. Germen, Style, and Stigma.—Fig. 5. Pouch.—Fig. 6. The same, with one of the valves removed; a. one of the seeds; b. the partition; c. one of the valves.—Fig. 7. The Partition, with the valves and seeds removed.—Fig. 8. A Seed with the testa or skin removed, showing the two cotyledons, with the radical meeting their edges, (cotyledons incumbent). Fig. 9. Transverse section of the same.—All more or less magnified.

From Iberia, the ancient name of Spain, where some of the species grow.
† See f. 38, n. †.
‡ See f. 107, n. ‡.
† See f. 38, a. || See f. 141, n. ||.

Winch's Fl. of Northumb. and Duth. p. 43.—Don's Gen. Syst. of Gard. & Bot. v. i. p. 194.—Walker's Fl. of Oxf. p. 186.—Irv. Lond. Fl. p. 162.—Cow. Fl. Guide, p. 91.—Thlaspi amarum, Johns. Gerarde, p. 263; the figure bad.

Localities.—In chalky fields; rare.—Oxfordshire; Henley; Nettlebed; and Mungewell: Dr. Sibinorp. Near Goring: Mr. L. Darwall, Trinity College, Cambridge. Corn-fields near Wooton; near Lewknor; and Stokenchurch Illils: G. Coles, Esq., Woodstock. Corn-fields on the right hand side of Cheney Lane, between the Asylum and the Wind-mill, Sept. 10, 1823; probably introduced with corn. Between Ibstone and l'enley Hangings, plentifully; Sept. 17, 1824; W. B.—Berks; About Wallingford, plenti Illy, and undoubtedly wild: Sir J. F. Smein, and Rev. A. Blo. am. Compton Downs; N. J. Winch, Esq. Chalk' ground near Herley: Mr. Gotobel. Coin-fields between Streatley and Pangbourn: 1333; Mr. W. Pamplin, jun.—Bucks; Chalky ground near Marlow: Mr. Gotobel. Field between Medenham and Hambledon: Mr. W. Hubst, in N. B. G.—Cambridge.h.re: About half a mile to the right of the road from Royston to Melbourne: W. H. Collama, in N. B. G.—Derbyshire; Between Crich and Matlock: Lond. Fl.—Herts; Corn-fields near Royston: Mr. W. Cornsty, in N. B. G.—Kent; Blue-Bell Hill; Mr. W. Pamplin, jun.—Northumberl..nd; in fields on the banks of Tyne near Hexham Bridge; at Hofeid banks; and Bed of the Tweed, abova Coldstie.m: N. J. Winch, Esq.—Somerset; Yeovil: Mag. N. t. Hist. Very rarely among the sand-hills at Burnham: J. C. Collans, in N. B. G.—St., Gordsn. Road-side between Cheadle and Oakmoor; on a Coninon: Rev. J. Horatio Diekenson.—Westmorland; Waste near Kent Teriace: N. B. G.—Yorkshive; Below Birbeck's Weir, Settle: N. J. Winch, Esq. Probably an oatenst from a garden, and washed down by the river: Mr. John Tatham, in N. B. G.—Wales. Anglessy; Above the beech between the Mount and Llainiog, in several places: Rev. H. Daviss.—SCOTLAND. Fifeshive; Inchcolm, near I dinbirgh: N. B. G.—Lanarkshive; Sands below Hamilton Bridge, nearly opposite the termination of the plantation: N. B. G. No longer to be found in Lightpator's station of "fields between Hamilton and Glasjow:" Fl. Glot.—Roxburgl.sh. On a sandy bank of the Tiviat, a little to the east of Den

Annual.—Flowers from June to September.

Root small, tapering, fibrous. Stem from six inches to a foot high, spreading, branched, leafy, smooth or slightly pubescent. Leaves alternate, somewhat fleshy, strap-spear-shaped and entire, or dilated and wedge-shaped, with several tooth-like notches, especially towards the apex, or with a tooth or two on each side. Flowers white, in a kind of corymb, which lengthens into a raceme as the inflorescence advances. Calyx upright. Corolla irregular, the two outer petals twice the length of the two inner ones. Pouch nearly circular, sharply notched at the end. Seeds flat, brownish-yellow, with a narrow border of a rather darker colour.

This species is a native of Europe from Portugal to Germany, and from England to Italy. It is often cultivated in the flower garden, where its brilliant white blossoms are very ornamental. The seeds are acrid and very bitter, and are said to be violently purgative. The whole plant is very bitter, and its general qualities antiscorbutic.

SALL SALL

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Chenopodium hybridum. Maple-leaved Goose foot o

CHENOPO'DIUM *.

Linnean Class and Order. PENTA'NDRIA †, DIGY'NIA.

Natural Order. CHENOPO'DEE‡, Vent.—Lindl. Syn. p. 213; Introd. to Nat. Syst. of Bot. p. 167.—Loud. Hort. Brit. p. 531.—Mack. Fl. Hiber. p. 226.—Hook. Brit. Fl. (4th cd.) p. 416.—Atriplices, Juss. Gen. Pl. p. 83.—Sm. Gram. of Bot. p. 91.—Rich. by Macgilliv. p. 425.—Querneales; sect. Rumicin.e; type, Betace.e; subty. Chenopodidæ; Burn. Outl. of Bot. v. ii. p. 523, 587, & 591.—Holerace.e, Linn.

GEN. CHAR. Colyx (see figs. 1 & 2.) inferior, of 1 sepal, concave, in 3, 4, or 5 deep, egg-shaped, concave, permanent segments, membranous at the edges, neither warted nor growing together after flowering. Corolla none. Filaments (see fig. 2.) 5, sometimes fewer, aw!-shaped, opposite to the segments, and about as long. Anthers of 2 round lobes. Germen (fig. 3.) orbicular, depressed. Styles short. Stigmas blunt. Seed (fig. 5.) solitary, lenticular (spherically convex on both sides), crustaceous, enveloped in a very thin, membranous, close pellicle, and covered by the permanent 5-angled calyx (see fig. 4.).

The 3-, 4-, or 5-parted caly; and the solitary, roundish, tunicated, superior seed; will distinguish this from other genera, without petals, in the same class and order.

Thirteen species British.

CHENOPO'DIUM HY'BRIDUM. Hybrid Goosefoot. Maple-leaved Goosefoot. Thorn Apple-leaved Goosefoot. Maple Blite.

. Spec. Char. Leaves heart-shaped, pointed, with broad angular teeth. Clusters much branched in a somewhat cymose manner, divaricated, leafless.

Engl. Bot. t. 1919.—Curt. Fl. Lond. t. 248.—Linn. Sp. Pl. p. 319.—Huds. Fl. Angl (2nd edit.) p. 105.—Willd. Sp. Pl. v. i. pt. n. p. 1303.—Sm. Fl. Brit. v. i. p. 275.; Engl. Fl. v. ii. p. 12.—With. (7th ed.) v. ii. p. 345.—Lind. Syn. p. 215.—Hook. Brit. Fl. p. 138.—Macr. Man. Brit. Bot. pp. 195 and 196.—Lightf. Fl. Scnt. v. i. p. 149.—Sibth. Fl. Oxon. p. 89.—Abbot's Fl. Bedf. p. 55.—Purt. Midl. Fl. v. i. p. 135.—Rell. Fl. Cant. (3:d ed.) p. 105.—Hook. Fl Scot. p. 84.—Grev. Fl. Edin. p. 58.—Winch's Fl. of Northumb. and Durh. p. 16.—Walker's Fl. of Oxf. p. 70.—Perry's Pl. Varvic. Selectæ, p. 24.—Irv. Lond. Fl. p. 122.—Cow. Fl. Guide, p. 26.—Chenopodium angulatum, Gray's Nat. Ar. v. ii. p. 284.—Chenopodium stramonii folio, Dill. in Ray's Syn. p. 154.—Vaill. Par. p. 36. t. 7. f. 2.

Localities.—In waste places, cultivated fields, and gardens; not common.—Oxfordsh. On dunghills, and rubbish: Dr. Sibthorp. A weed in the Botanic Garden: W. B.—Beds; Mill Lane, Bedford: Rev. C. Abbot.—Cambridgesh. Banks of some watery pits beyond Ely: Mr. J. Sherard, in Ray's Syn. Not uncommon in gardens: Rev. R. Relian.—Dorset. In a corn-field near Bland ford; and on waste grounds near Poole: Dr. Pulteney.—Durham. On the

Fig. 1. Back view of the Calyx.—Fig. 2. Front view of the same, with the stamens and Pistils.—Fig. 3. Germen and Pistils.—Fig. 4. Calyx, with the ripe seed inclosed.—Fig. 5. A Seed.—All a little magnified.

^{*} From chen, chenos, Gr. a goose; and pous, Gr. a foot; probably alluding to a fancied resemblance of the leaves of certain species to the foot of a goose. Withesting.

† See folio 48, note +.

† See folio 231, a.

Sunderland Ballast-hills: N. J. Winch, Esq.—Essex; About Woodford: R. Warner, Esq. Churchyard at Sible Hedlingham: D. Turner, Esq. About Colchester: Dale. Between Ipswich and Dedham: Sif J. E. Smith.—Gloucestersh. Near Bristol: Miss Worsley, in N. B. G.—Kent; Near Northfleet, plentifully: Hudder, About Greenhithe: Mr. D. Coopen.—Norfolk; Oxburgh: Mr. Pitchford. Waste places by the river: N. B. G.—Northumberland; On St. Anthou's Ballast-hills: N. J. Winch, Esq.—Suffolk; Sibton Abbey: Mr. Davy. About Bury: Sif T. G. Cullum. Yarmouth, near the river: Mr. Wicc.—Surrey; In Battersea fields, hetwixt the Windmill Meadow and the road leading to Chelsea Bridge, adjoining the Gardener's ground: Mr. W. Curtis. Near Mitcham: Mr. E. Foster, jun. At Wandsworth; and in Lavender Hill Nursery: Mr. W. Pamplin, jun. Norwood: Mr. D. Cooper.—Warwicksh. Among rubbish on the road from Hainpton-on-the-Hill to Warwicksh. Mr. W. G. Penny.—In Worcestershire; Mr. E. Lefs.—SCOTLAND. Edinburghshire; In cultivated fields about Edinburgh: Mr. G. Don.—Not in the Irish Flora.

Annual.-Flowers in August.

Root simple, with numerous, slender, spreading fibres. Stem upright, from 1 to 2 feet high; branched, angular, smooth, leafy. Leaves alternate, on rather slender petioles, smooth, without any mealiness, veiny, broad, somewhat triangular, taper-pointed, with 2 or 3 broad angular teeth on each side, heart-shaped, or eggshaped, not elongated at the base. Petioles shorter than the leaves, convex on the under, and furrowed on the upper side. Flowers inconspicuous, in axillary and terminal, somewhat cymose, slender, divaricated, leafless panicles. Calyx divided nearly to the base into 5 egg-shaped, bluntish, mealy, segments, which are membranous at the edges. Corolla none. Seed round, flattened, of a dark chesnut colour, with silvery white dots.

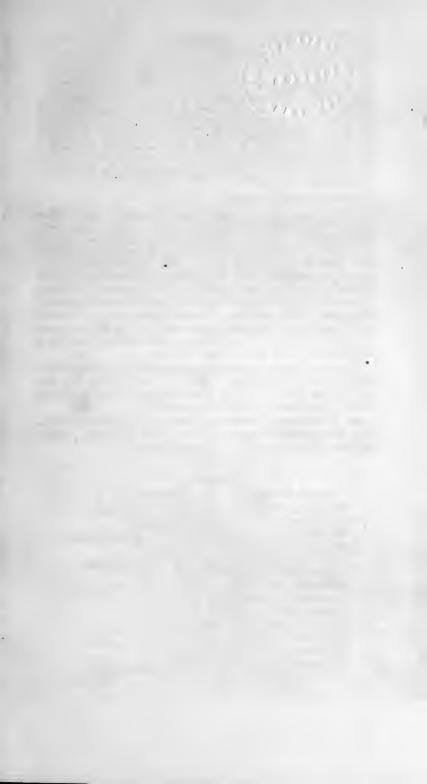
The leaves of this species very much resemble those of the *Thorn Apple (Datura stramonium*, t. 121.) It has a strong and disagreeable smell, and is, by some authors, suspected to be poisonous. TRAGUS mentions it as a plant fatal to swine.

Mr. W. PAMPLIN, jun. remarks, that in the Lavender-Hill Nursery, Wandsworth, it occasionally varies with the stems, petioles, and veins of the leaves, of a rich purple colour.

AUTUMN.

"Sweet Sabbath of the year, while evening lights decay,
Thy parting steps methinks I hear steal from the world away.
Amid thy silent bowers 'tis sad, but sweet, to dwell,
Where falling leaves and drooping flowers around me breathe farewell.
Along thy sunset skies their glories melt in shade,
And, like the things we fondly prize, seem lovelier as they fade,
A deep and crimson streak thy dying leaves disclose;
As, on Consumption's waning cheek, 'mid ruin, blooms the rose.
Thy scene each vision brings of beauty in decay;
Of fair and early faded things, too exquisite to say;—
Of joys that come no more; of flowers whose bloom is fled;
Of farewells wept upon the shore; of friends estranged or dead:—
Of all that now may seem, to Memory's tearful eye,
The vanished beauty of a dream, o'er which we gaze and sigh."

Anonymous.





Linum unitatifoimum. Common Flax o 1.Russico Del. Pub to M. Bander Bolance Garden Coford 1832 (Mathews the

LI'NUM*.

Lipnean Class and Order. Penta'ndria, Pentagy'nia. Natural Order. Li'neæ, Dec.—Lindl. Syn. p. 53.; Introd. to Nat. Syst. of Bot. p. 155.—Loud. Hort. Brit. p. 502.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 449.—Mack. Fl. Hibern. p. 51.—Hook. Brit. Fl. (4th ed.) p. 400.—Geraniaceæ; tribe, Linaceæ, Rich. by Macgilliv. pp. 474 & 475.—Akin to Caryophylleæ, Juss. Gen. Pl. p. 303.—Sm. Gram. of Bot. pp. 159 and 161.—Grunales, Lina.—Rosales; suborder, Rhæadosæ; section, Gruinæ; type, Linaceæ; Burn. Outl. of Bot. v. ii. pp. 614, 784, and 808.

GEN. CHAR. Calyx (fig. 1.) inferior, of 5 spear-shaped, entire, upright, permanent sepals, smaller than the corolla. Corolla (fig. 2.) of 5, moderately spreading petals, gradually dilated upwards, obtuse, or abrupt. Filaments (figs. 3 & 4.) 5, as long as the calyx, awl-shaped, upright, inserted into an annular floral receptacle, along with the petals, and 5 shorter, intermediate, imperfect oncs. Anthers arrow-shaped. Germen (fig. 6.) superior, egg-shaped. Styles (see fig. 6.) 5, thread-shaped, upright, the length of the stamens. Stigmas bluntish, spreading, undivided. Capsule (figs. 8 & 9.) nearly globular, obscurely 5-sided, with 10 cells, and 10 valves, combined in pairs. Seeds (fig. 11.) solitary, egg-shaped, pointed, compressed, polished.

Distinguished from other genera, in the same class and order, by the calyx of 5 sepals; the corolla of 5 petals; the 10-celled, and 10-valved capsule; and the egg-shaped, compressed seeds.

Four species British.

LI'NUM USITATI'SSIMUM ‡. Common Flax. Lint. Lyne. Linseed, or Lintseed.

Spec. Char. Leaves alternate, spear-shaped. Sepals egg-shaped, pointed, with 3 ribs. Petals crenate. Stem mostly solitary.

Engl. B t. t. 1357.—Curt. Fl. Loud. t. 316.—Woodv. Med. Bot. v. ii, p. 303. t. 111.—Mart. Fl. Rust. t. 133.—Linn. Sp. Pl. p. 397.—Huds. Fl. Angl. (2nd ed.) p. 133.—Wild. Sp. Pl. v. i. pt. 11. p. 1533.—Sm. Fl. Brit. v. i. p. 342.; Engl. Fl. v. ii. p. 148.—With. (7th ed.) v. ii. p. 407.—Gray's Nat. Arr. v. ii. p. 342.; Engl. Fl. v. ii. p. 153.—Hook. Brit. Fl. p. 147.—Macr. Man. Brit. Bot. p. 35.—Lightf. Fl. Scot. v. i. p. 173.—Abbot's Fl. Bedf. p. 71.—Thornt. Fam. Herb. p. 331, with a figure.—Dickson's Practical Agriculture, v. ii. pp. 733 to 744.—Davics' Welsh Bot. p. 31.—Purt. Midl. Fl. v. i. p. 164.—Relh. Fl. Cant. (3rd ed.) p. 132.—Hook. Fl. Scot. p. 97.—Grev Fl. Edin. p. 74.—Fl. Devon. pp. 56 x 181.—Loud. Encycl. of Agricult. (2nd ed.) pp. 913 to 916. parag. 5880 to 6921, with figures.—Don's Gen. Syst. of Gard. and Bot. v. i. pp. 453 to 456.—Winch's Fl. of Northumb. & Durh. p. 21.—Baxt. Lib. of Agricult. and Horticult. Knowl. (2nd ed.) p. 239.—Walker's Fl. of Oxf. p. 88.—Perry's Pl. Varvic. Selectæ, p. 27.—Lind. Fl. Med. p. 129.—Dick. Fl. Abred. p. 32.—Irv. Lond. Fl. p. 173.—Mack. Catal of Pl. of Irel. p. 31; Fl. Hibern. p. 51.—Linum sylvestre sativum plane referens, Ray's Syn. p. 362.—Linum sativum, Johnson's Gerarde, p. 556.

‡ So called from its extreme utility, and the various economical purposes to which its several parts are applied. Burnett.

Fig. 1. Calyx.—Fig. 2. Corolla.—Figs. 3, 4, & 5. Stamens.—Figs. 6 & 7. Germens, Styles, and Stigmas.—Fig. 8. Capsule, with the Calyx.—Fig. 9. Ditto, without the Calyx.—Fig. 10. Transverse section of ditto.—Fig. 11. A Seed.

^{*} From linon, Gr.; and this from lin, Celtic; a thread; hence our word linen.

THORNTON. + See folio 48, note +.

Localities.—In corn-fields, sandy pastures, and Downs; most common in the Western Counties.

Annual.—Flowers in June and July.

Root simple, slender, fibrous, of a pale brown colour. Herb very smooth. Stem from 1 to 2 feet high, upright, round, straight, leafy, branched only at the top. Leaves alternate, sessile, pointed, 3-ribbed, quite entire, rather glaucous; the lowermost short and blunt. Flowers several, growing in a corymbose panicle, on round, smooth peduncles. Calyx permanent. Sepals egg-shaped, pointed, or mucronate, 3-nerved, with scarious or membranaceous, irregularly fringed margins. Corolla large, and rather handsome. Petals wedge-shaped, thin and delicate, readily dropping off, blue, glossy, with numerous darker coloured veins. Filaments dilated at the base, where they are slightly united. Anthers at first oblong, but finally arrow-shaped, incumbent, blue. Styles somewhat clubshaped, blue. Capsule roundish, with a sharp point. Seeds elliptical, highly polished.

This species is said to be found commonly all over Europe; in North America, and in Asia; even on the Neelgherry hills of India. The seeds yield, by expression only, a large portion of oil, well known under the name of Lint-seed oil, which is sometimes used in medicine. When heat is applied, it acquires a yellowish colour, and is used by painters and varnishers. After the oil is exyengwish colour, and is used by painters and varnishers. After the oil is expressed, the remaining farinaceous part is the oil-cake upon which oxen are fattened. The seeds also contain a large quantity of bland mucilage, whence their use in decoction as demulcents. Lint-seed meal forms one of the materials for cataplasms; and the oil mixed with lime-water has been a favourite application to burns. The fibres of the stem of this plant are manufactured into thread and linen cloth, from the finest cambric to the coarsest canvass; and this, when worn to rags, is inade into paper. For these purposes flax has been cultivated from the earliest ages, and for an unknown length of time in Britain, and other patter of Europe. At one profel private families raised enough for their northern parts of Europe. At one period private families raised enough for their own consumption, but the process of maceration proving highly detrimental to the streams and common ponds, Acts were passed, in the reigns of HENRY VIII. and our first James, to prevent this process being carried on in any stream or pond where cattle drank, under a heavy penalty. The new plan of steeping flax in hot water with soft soap, is said to be a great improvement, and it was for this process that a secret or unenrolled patent was granted about 25 years ago to Ler, its inventor. This process is said to separate the fibre from the woody matter better than steeping in water; and this in the short space of two or three hours. The flax used in this country is chiefly of foreign growth, for, notwithstanding the rewards latterly held out by the Legislature to encourage its domestic culture, it is found in well-peopled districts to be an unprofitable investment, not only from its inferior value to corn, but from its being one of the most exhausting crops that can be grown, especially when allowed to ripen its seeds. Our principal supplies are from Russia, the Netherlands, and Prussia; some is also brought from France, Egypt, and even from New South Wales .- See Burn. Outl. of Bot.; With. Bot. Arr.; Loud. Ency. of Agricult., &c.

The few plants which compose the Natural Order Linex, are mostly herbaceous. Their leaves are entire, and without stipulæ. Their calyx consists of from 3 to 5 sepals, which are permanent, and imbricated in the bud. Their corolla is formed of 4 or 5 petals, which are twisted in the bud, and very fugacious. Their stamens vary from 3 to 5, with their filaments united at the base into an hypogynous ring, with small teeth (abortive stamens) between them. The ovary has about the same number of cells as there are sepals, and as many styles. The stigmas are capitate. The capsule is globose, and crowned with the permanent base of the styles; each cell is partially divided into two by a spurious dissepiment, and opens with 2 valves at the apex. The seeds are solitary in each cell, compressed, and inverted; with flat cotyledons; and a straight embryo, with the radical pointing towards the hilum.

The only British genera in this order are, Linum, t. 353.; and Radiola, t. 188.







Origanum vulgare. Common Marjoram. U

ORI'GANUM *.

Linnean Class and Order. DIDYNA'MIA †, GYMNOSPE'RMIA ‡. Natural Order. LABIA'TÆŞ, Juss. Gen. Pl. p. 110.—Sm. Gram. of Bot. p. 99.; Engl. Fl. v. iii. p. 63.—Bentham, in Bot. Regist. (1829).—Lindl. Syn. p. 196.; Introd. to Nat. Syst. of Bot. p. 239.—Rich. by Macgilliv. p. 439.—Loud. Hort. Brit. p. 528.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 665.—Mack. Fl. Hibern. p. 209.—Verticillatæ of Linnæus.—Syringales; subord. Primulosæ; sect. Menthinæ; type, Menthaceæ of Labiatæ; subtype, Saturidæ; Burn. Outl. of Bot. v. ii. pp. 900, 958, 968, & 972.

GEN. CHAR. Involucrum of numerous, imbricated, egg-shaped, flat, coloured, permanent leaves, one under each flower (see fig. 2, a.) longer than the calyx, forming a 4-angled spurious cathin. Calyx (fig. 1.) inferior, of I sepal, with a bluntly angular tube, 5-toothed; when in fruit closed up with hairs. Corolla (see fig. 2, c.) of 1 petal, ringent, tube rather longer than the calyx, a little compressed; upper lip erect, nearly flat, blunt, notched; lower lip in 3, deep, nearly equal, simple lobes. Filaments (see fig. 3.) 4, didynamous, thread-shaped, the 2 longest longer than the corolla. Anthers distant, egg-shaped, 2-lobed. Germen 4-lobed. Style (see fig. 3.) thread-shaped, ascending. Stigma very slightly notched. Seeds (see figs. 4, 5, & 6.) 4, egg-shaped, in the bottom of the closed, permanent calyx.

Distinguished from other genera in the same class and order, by the *involucrum* of numerous, dilated, flat, bracteas, 1 to each flower, collected into a spurious catkin; the 10- to 13-nerved, somewhat unequally 5-toothed calyx; and the straight, notched, upper lip of the corolla.

One species British.

ORI'GANUM VULGA'RE. Common Marjoram. English Wild

Marjoram. Grove Marjoram. Common Organy.

SPEC. CHAR. Heads of Flowers roundish, panicled, crowded, upright. Bracteas egg-shaped, obtuse, smooth, longer than the calyx. Calyx with 5, pointed, unequal teeth; throat hairy.

Engl. Bot. t. 1143.—Curt. Fl. Lond. t, 338,—Woodv. Med. Bot. v. iii. p. 451. t, 164.—Linn. Sp. Pl. p. 824.—Huds. Fl. Angl. (2nd edit.) p. 262.—Willd. Sp. Pl. v, iii. pt. 1. p. 135.—Sm. Fl. Brit. v. ii. p. 639.; Engl. Fl. v. iii. p. 106.—With. (7th ed.) v. iii. p. 718.—Gray's Nat. Arr. v. ii. p. 380.—Lindl. Syn. p. 206.; 2nd. ed. p. 201.—Hook. Brit. Fl. p. 272.—Maer. Man. Brit. Bot. p. 181.—Light, Fl. Scot. v. i. p. 317.—Sibth. Fl. Oxon. p. 188.—Abb. Fl. Bedf. p. 132.—Thornt. Fam. Herb. p. 575, with a figure.—Davies' Welsh. Bot. p. 58.—Purt. Midl. F. v. ii. p. 749.—Relb. Fl. Cant. (3rd ed.) p. 245.—1look. Fl. Scot. p. 184.—Grev. Fl. Edin. p. 133.—Fl. Devon. pp. 101 & 146.—Johnst. Fl. Berw. v. i. p. 134.—Winch's Fl. of Northumb. and Durh. p. 40.—Loud. Eneyel. of Gard. (new ed.) p. 873. paragr. 4570.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 765.—Walker's Fl. of Oxf. p.

Fig. 1. Calyx.—Fig. 2. A separate Flower; a. the bractca; b. the calyx; c. the corolla.—Fig. 3. Vertical Section of the Corolla, showing the Stamens and Pistil.—Fig. 4. The 4 Seeds.—Figs. 5 & 6. Single Seeds.—All, except fig. 5, magnified.

^{*} Said to be derived from oros, Gr. a mountain; and ganos, Gr. joy; the delight of the mountain. Don.

+ See folio 31, note +. ‡ Ibid, note ‡. \$ See folio 94, a.

170.—Jacch's West Devon, and Cornw. Fl.—Bab. Fl. Bath. p. 39.—Dick. Fl. Abred. p. 43.—Irv. Loud. Fl. p. 134.—Luxf. Reig. Fl. p. 50.—Cow. Fl. Guide, p. 40.—Mack. Catal. Pl. of Irel. p. 56.; Fl. Hibern. p. 220.—Origanum vulgare spontaneum, Ray's Syn. p. 236.—Origanum Anglicum, John. Ger. p. 666.

LOCALITIES .- In thickets and hedges, and on dry banks, in a lime-stone or

gravelly soil; frequent.

Perennial.—Flowers from June to September.

Root somewhat creeping, horizontal, brown, tufted with many fibres. Stems numerous, upright, from 8 inches to a foot and a half high, 4-cornered, purplish, leafy, clothed, more or less, with short recurved hairs; branched and panicled at the summit. Leaves opposite, on short petioles, deflexed, bright green, more or less hairy, rarely almost smooth, entire or slightly serrated, minutely fringed, and besprinkled with resinous dots on both sides. Flowers in panicled, crowded, roundish, upright spikes. Bracteas eggshaped, pointed, of a purplish colour, one under each flower, longer than the calyx, smooth, or slightly hairy, and minutely serrated. Calyx tubular, with 5, upright, broadish, nearly equal, coloured teeth, striated, slightly hairy, covered with resinous dots; its mouth closed with dense, prominent, white hairs. Corolla light purple, slightly hairy, with a few scattered resinous glands, like those on the calyx; Stamens as long, or longer than the corolla, but in some specimens they are shorter, and then the anthers appear to be destitute of pollen.

The habit of this species is very variable. There is a variety of it with white flowers and green bracteas, but it is rare. INGTON has observed it in a lane near Bath. Another variety with variegated leaves is frequently cultivated in gardens; as is also the

common one for culinary purposes.

The wild Marjoram is a warm aromatic: the dried leaves, used instead of tea, are extremely grateful; they are also employed in medicated baths and fomentations. The essential oil of this plant is so acrid, that it may be considered as a caustic, and was formerly much used with that intention by farriers; in some parts of Sweden it is put into ale, to give it an intoxicating quality, and to prevent its turning sour; a little cotton wool moistened with it, and put into the hollow of an aching tooth, often relieves the pain. It is also frequently used, mixed with olive oil, as a stimulating liniment against baldness, in rheumatic complaints, and against sprains and bruises. The tops will dye woollen cloth purple, and linen of a reddish brown colour. Goa:s and sheep eat this plant; horses are not fond of it; cows refuse it.—GERARDE says, " Organy given in wine is a remedy against the bitings and stingings of venomous beasts, and cureth them that have drunke opium, or the juice of blacke poppy, or hemlockes, especially if it be given with wine and raisons of the sunne."

PARKINSON (Theat. Bot. p. 16.) tells us, that "Antigonus, an ancient Grecke Author, in his Rhapsody or huddle of memorable reports, relateth a pretty fable of a Tortoise eating *Origanum*, when hee goes to fight with the Serpent, which when one had heedfully observed, he cut up the *Origanum* where it grew, and took it away; whereof when the Tortoise was deprived, he perished by the venemous force of the Serpent. The same Antigonus setteth downe there also another fable of the Ring-doves, who by putting Origanum into their wounds, were thereby cured. As also, that if the hills of Ants were stopped up with Origanum and Brimstone, they would quickly flie away."

SULLING WAY



C. Mathews Dd & So !

KONI'GA *.

Linnean Class and Order. Tetradyna'mia†, Siliculo'sa‡.

Natural Order. Cruci'feræ§, Juss. Gen. Pl. p. 237.—Sm.
Gram. of Bot. p. 138.; Engl. Fl. v. iii. p. 153.—Rich. by Macgilliv.
p. 498.—Cruciferæ; subord. Pleurorhizeæ||; tribe, Alyssineæ; Lindl. Syn. pp. 20, 21, & 25.; Introd to Nat. Syst. of Bot.
pp. 14 to 18.—Loud. Hort. Brit. pp. 498 & 499.; Mag. Nat. Hist.
v. i. pp. 143 & 240.—Don's Gen. Syst. of Gard. and Bot. v. i.
pp. 146 & 147.—Mack. Fl. Hibern. pi. i. p. 16.—Hook. Brit. Fl.
(4th ed.) p. 397.—Rosales; subord. Rhæadosæ; sect. Rhæadinæ; type, Brassicaceæ; subtype, Arabidæ; Burn. Outil. of
Bot. pp. 614, 784, 847, 854, & 856.—Siliquosæ, Linn.

GEN. CHAR. Calyx (fig. 1.) inferior, of 4, egg-shaped, concave, spreading, deciduous sepals, equal at the base. Corolla (fig. 2.) cruciform, of 4, inversely egg-shaped, entire, flat, spreading petals, with short claws. Glands 8, hypogynous. Filaments (fig. 4.) 6, tetradynamous, about as long as the calyx, all toothless. Anthers of 2 roundish lobes. Germen (fig. 5.) somewhat egg-shaped, compressed. Style short. Stigma simple, small. Silicula (pouch) (fig. 6.) sessile, somewhat egg-shaped, laterally compressed, tipped with the style, of 2 cells; valves flattish; dissepiment (partition) (see figs. 7 & 8.) membranous, of the same shape and breadth as the valves. Seeds (see fig. 7.) one or many in each cell, mostly bordered, their umbilical cords adhering by the base to the dissepiment. Cotyledons (see figs. 9 & 10.) accumbent (o=.)

Distinguished from other genera, with accumbent cotyledons, in the same class and order, by the entire, nearly equal petals; and the dehiscent, nearly entire pouch, of 2, 1- or many-seeded cells, a

broad dissepiment (septum), and nearly flat valves.

One species British.

KONI'GA MARI'TIMA. Sea-side Koniga. Sweet Alyssum. Sea Alysson. Sweet Cameline.

Spec. Char. Cells 1-seeded.

Koniga Maritma. Brown in Append. Denh. and Clapp. Exp. Afr. p. 9.—Hook. Brit. Fl. p. 301.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 175.—Bab. Fl. Bath. p. 5.—Dick. Fl. Abr. p. 45.—Alyssum maritimum, Willd. Sp. Pl. v. iii. pt. i. p. 459.—Engl. Bot. t. 1729.—Brown in Hort. Kew. (2nd ed.) v. iv. p. 95.—With. (7th ed.) v. iii. p. 750.—Gray's Nat. Arr. v. ii. p. 699.—Irv. Lond. Fl. p. 161.—Alyssum minimum, Linn. Sp. Pl. p. 908.—A. halimifolium, Curt. Bot. Mag. t. 101.—Clypeola maritima, Linn. Sp. Pl. p. 910.—Glyce maritima, Lind. Syn. p. 26.—Thlaspi narbonense Lobelii, Johnson's Gerarde, p. 267.

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. A Petal.—Fig. 4. Stamens and Pistil.—Fig. 5. Germen, Style, and Stigma.—Fig. 6. A Pouch.—Fig. 7. Pouch with the valves removed, showing the dissepiment, and the seed.—Fig. 8. The same, with seed removed.—Fig. 9. A Seed, with the testa or skin taken off, to show the accumbent cotyledous, and the radical.—Fig. 10. Transverse section of the same.—

All, except fig. 5, more or less magnified.

[•] Konig of Adanson; Koniga of Dr. R. Brown; so named in honour of Charles Konig, F.R. S. F. L.S. Superintendant of the Natural History department in the British Museum. Don.

† See fol. 38, n. +, ‡ See fol. 107, n. ‡. § See fol. 38, a. | See fol. 141, n. j.

LOCALITIES.—On banks and cliffs near the sea.—Devon; At Budleigh-Salterton: Sir W. J. Hooken, and H. Woollcombe, Esq. said not to be wild there. On the shore below Longroom Point, Plymouth, gathered two successive seasons, but hardly wild, and not plentiful: W. A. Bnowfield, in N. B. G.—Middlesex; Among the refuse of gardens, on Hampstead Heath, not wild: A. Irvine, in Lond. Fl.—Norfolk; On a rock near Cromer: Miss Bell., in N.B.G.—Somersetshire; Naturalized on waste ground near Woodland Place, Bath: C. C. Babington, Esq. Burnham Sands: J. C. Collins, in N. B. G.—WALES. Merionethshire; Sands near Barmouth: H. Woollcombe, Esq.—SCOTLAND. About half a mile from the Sea, near Aberdeen: Professor W. Duncan, by whom it was first added to the British Flora.

Perennial.—Flowers from May to November.

Root very tough, branched, whitish, and fibrous. Stem from 4, to 8 or 10 inches high, either procumbent or upright, somewhat woody at the base, much branched, leafy, and clothed—like the leaves, calyx, and germen—with forked, close-pressed, silvery hairs. Leaves alternate, sessile, strap-spear-shaped, entire, tapering at the base, hoary, and of a glaucous-green colour. Flowers small, very numerous, sweet scented, in dense, tufted, or corymbose clusters, much elongated when in fruit. Petals roundish, of a brilliant white colour. Stamens simple, and, like the claws of the petals, turning purple in decay. Pouch nearly round, smooth, with a few scattered hairs, shining, slightly tumid, with one seed in each cell.

This plant is a native along the Mediterranean Sea, in the South, and in other parts of Europe. It is frequently cultivated in gardens on account of its agreeable honey-like scent, where it is usually treated as an annual. It begins flowering as early as May or June, and continues in bloom till near Christmas. Dr. WITHERING thinks it might prove a valuable acquisition to the apiarian border.

A striped variety of this species is not uncommon in gardens, where it is treated as a Green-house shrub; this should be increased by cuttings, which strike readily if planted under a hand-glass.

"YE are not miss'd, fair flowers, that late were spreading
The Summer's glow by fount and dreary grot;
There falls the dew, its fairy favours shedding,—
The leaves dance on, the young birds miss you not.

Still plays the sparkle o'er the rippling water,
O Lily! whence thy cup of pearl hath gone;
The bright wave mourns not for its loveliest daughter,
There is no sorrow in the wind's low tone.

And thou, meek Hyacinth! afar is roving
The bee that oft thy trembling bells hath kiss'd;
Cradled ye were, fair flowers! midst all things loving,
A joy to all; yet, yet ye are not miss'd!

Ye, that were born to lend the sunbeam gladness,
And the winds fragrance, wandering where they list,—
Oh! it were breathing words too deep in sadness,
To say, Earth's human flowers not more are miss'd."

MIS. HEMANS.



Atriplex patula. Spreading Hulbert leaved Orache of Charles 1239

A'TRIPLEX*.

Linnean Class and Order. POLYGA'MIA+, MONŒ'CIA.

Natural Order. Chenopo'der, the Norder to Nat. Syst. of Bot. p. 167.—Loud. Hort. Brit. p. 531.—Mack. Fl. Hiber. p. 226.—Hook. Brit. Fl. (4th ed.) p. 416.—Atriplices, Juss. Gen. Pl. p. 83.—Sm. Gram. of Bot: p. 91.—Rich. by Macgilliv. p. 425.—Querneales; sect. Rumicinæ; type, Betaceæ; subty. Chenopodidæ; Burn. Outl. of Bot. v. ii. p. 523, 587, & 591.—Holeraceæ, Linn.

GEN. CHAR. Sterile Flower (fig. 5.) and united flower (fig. 1.), which two are mostly barren. Calyx inferior, concave, permanent, in 5 deep, equal, egg-shaped, concave segments, thin or membranous at the margins. Corolla none. Filaments (see figs. 1 & 5.) 5, awl-shaped, from the bottom of the calyx, opposite to its segments, and about as long. Anthers of 2 round lobes. Germen superior, orbicular, usually very imperfect. Style (when present) short, deeply divided. Stigma simple, spreading. Seed 1, round, depressed, wrapped in a thin close pellicle, and covered by the closed permanent, 5-angled calyx. It is rare that our British species form any seed in these flowers. Fertile flower (fig. 2.) on the same plant. Calyx inferior, in 2, deep, large, flat, upright, compressed, egg-shaped, bluntish segments. Corolla none. Stamens none. Germen (see fig. 2.) superior, compressed. Style (see figs. 3 & 4.) 1, round, compressed, wrapped in a thin close pellicle, and enclosed between the enlarged, converging, heart-shaped segments of the calyx.

• The 5-cleft calyx; and the 5 stamens of the sterile and of the united flowers; and the 2-parted calyx; the bifid style; and the single seed of the fertile flowers; will distinguish this from other genera, without a corolla, in the same class and order.

The presence of the fertile or pistilliferous flowers with a 2-parted calyx, is the only mark of distinction between this genus and that of *Chenopodium*; see t. 352.

Seven species British.

A'TRIPLEX PA'TULA. Spreading Halberd-leaved Orache. Delt Orrach. Common wild Orache. Fat-hen. Lambs-quarters.

Fig. 1. A Flower, with both Stamens and Pistil.—Fig. 2. Flower with Pistil only,—Fig. 3. A Seed,—Fig. 4. The same, accompanied with the 2 enlarged valves of the calyx of the pistilliferous Flower.—Fig. 5. A Flower with stamens only,—Fig. 6. A Spike after flowering, with the valves of the calyx of the pistilliferous or fertile Flowers enlarged.—Figs. 1 & 5. slightly magnified.

^{*} From a, Gk. not; and traphein, Gk. to nourish; as affording little or no nourishment.

⁺ The 23rd Class of the Linnman Artificial System; it contains those plants which have some flowers with both stamens and pistils; others with stamens only; and others with pistils only, either on the same plant, or on 2 or 3 distinct ones of the same species; such difference in the essential organs being moreover accompanied with a diversity in the accessory parts of the flowers.

‡ See folio 231, a.

SPEC. CHAR. Stem herbaceous, spreading. Leaves triangular-spear-shaped, somewhat halberd-shaped, smooth above, irregularly toothed; the upper ones entire. Calyx of the fruit more or less tuberculated at the sides.

Engl. Bot. t. 936.—Linn. Sp. Pl. p. 1494.—Willd. Sp. Pl. v. iv. pt. 11, p. 964.—Sm. Fl. Brit. v. iii. p. 1091.; Engl. Fl. v. iv. p. 257.—With. (7th edit.) v. ii. p. 348.—Gray's Nat. Arř. v. ii. p. 281.—Lindl. Syn. p. 217.—Hook. Brit. Fl. p. 440.—Macr. Man. Brit. Bot. p. 196.—Davies' Welsh Bot. p. 96.—Relh. Fl. Cant. (3rd ed.) p. 415.—Purt. Midl. Fl. v. iii. p. 384.—Hook. Fl. Scot. p. 291.—Grev. Fl. Edin. p. 212.—Fl. Devon. pp. 161 & 140.—Johnst. Fl. Berwick, v. i. p. 223.—Winch's Fl. of Northumb. and Durh. p. 65.—Walker's Fl. of Oxf. p. 300.—Bab. Fl. Bath. p. 42.—Dick. Fl. Abred. p. 58.—Irv. Lond. Fl p. 122.—Luxf. Reig. Fl. p. 86.—Cow. Fl. Guide. p. 23.—Mack. Catal. Pl. of Ircl. p. 88; Fl. Ifibern. p. 239.—Atriplex hastata, Curt. Fl. Lond. t. 118.—Huds. Fl. Angl. (2nd ed.) p. 443.—Light. Fl. Scot. v. ii. p. 636.—Sibth. Fl. Oxon. p. 90.—Abb. Fl. Bedf. p. 219.—Purt. Midl. Fl. v. iii. p. 489.—Atriplex sylvestris folio hastato seu deltoide, Ray's Syn. p. 151.—Atriplex sylvestris vulgaris, Johnson's Gerarde, p. 326.

LOCALITIES.—On cultivated as well as waste ground, and on rubbish and dung-hills; common.

Flowers in June, July, and August.

Root simple, slender, fibrous, and whitish. Stem usually upright, from 1 to 3 feet high, 4-cornered, the angles obtuse, the sides somewhat grooved, a little swollen at the joints, smooth, often of a . purplish colour, much branched quite to the bottom; branches opposite, striated, spreading, the lowermost very long, sometimes almost equal with the stem itself, and for the most part procum-Leaves on the lower part of the stalk opposite, on longish petioles, triangular, somewhat halbert-shaped, having two, large, pointed, spreading lobes, at the base, with many very unequal, sharp, scattered teeth, between them and the point; the base quite entire; upper leaves mostly alternate, gradually narrower, with smaller lobes, or none at all, so that the floral ones are perfectly spear-shaped, as well as entire; all more or less powdery, especially on the under side. Flowers in axillary and terminal, long, upright, interrupted, often reddish spikes. The 2-valved calyx of the fertile flowers is armed at both sides with several prominent pointed tubercles, or prickles (see fig. 4). It is these flowers only which produce seed, which is rather large, and finely dotted.

A variety of this, γ of SMITH, in which the whole plant is procumbent, more glaucous, often reddish, and somewhat fleshy, frequently occurs on sandy ground by the sea side, and in salt-marshes.

In a young state this species is frequently eaten instead of Spinach and other greens. Birds are very fond of the seeds; but cattle do not seem much to like the plant. In gardens and other cultivated ground it is a very troublesome weed, it should not therefore be allowed to grow and seed on dunghills.

Mr. Purton observes, in his excellent Midland Flora, that "in the morning, before the dew is evaporated, this plant displays a surprising brilliancy; the leaves and stem then being covered over with shining particles, as if they were studded with diamonds."



A STATE OF THE PARTY OF THE PAR



Listera Nidus-Avis. Common Birdis-nest. 71 Eufell Dd. Put by WBarter Botanic Garden Oxford 1820. Nathern Sc.

LISTE'RA *.

Linnean Class and Order. Gyna'ndriat, Mona'ndria.

Natural Order. ORCHI'DEÆ, Linn.—Juss. Gen. Pl. p. 64.-Sm. Gram. of Bot. p. 81.; Engl. Fl. v. iv. p. 3.—Lindl. Syn. p. 256; Introd. to Nat. Syst. of Bot. p. 262 .- Rich. by Macgilliv. p. 412 .-Loud. Hort. Brit. p. 536.--Mack. Fl. Hibern. p. 274.--Macr. Man. Brit. Bot. p. 224.--Hook. Brit. Fl. (4th ed.) p. 425.--Palmares; order, MUSALES; sect. ORCHIDINÆ; type, ORCHIDACEÆ; Burn.

Outl. of Bot. v. i. pp. 391, 437, 458, & 461.

GEN. CHAR. Perianthium # (calyx & corolla) (fig. 1.) superior; Sepals 3, egg-shaped, concave, spreading, permanent; Petals 2, spear-shaped, spreading, about as long as the sepals; Lip (nectary, Sm.) without a spur, much longer than the petals, dependant, 2-lobed; slightly concave at the base within the sepals; disk marked with a longitudinal central furrow, producing honey. Anther (see fig. 2, c.) oblong, parallel to the stigma, to which it is fixed behind by its base, of 2 close, parallel, strap-shaped cells, which deposit the powdery masses of pollen upon the upper lip (fig. 2, a.) of the stigma. Germen inversely egg-shaped, or roundish, angular. Style (column) very short, cylindrical, not bordered. Stigma (see fig. 2, a & b.) in front, of 2, unequal, flat, parallel lips; the lowermost (fig. 2, b.) rounded, very short. Capsule (fig. 7.) elliptic-oblong, blunt, angular, ribbed. Seeds minute, tunicated.

The spreading segments of the perianthium; the spurless, 2-lobed lip; the wingless column; the anther fixed by its base, and parallel with the stigma; and the farinaceous pollen; will distinguish this from other genera in the same class and order.—Three species British.

LISTE'RA NIDUS-AVIS. Common Bird's-nest.

Stem with sheathing scales. Co-Spec. Char. Leaves none. lumn without any crest. Lip oblong-spear-shaped, with 2 spread-

ing lobes, toothless at the base.

Ing 10Des, toothless at the base.

Hook. Fl. Lond. t. 58.; Fl. Sect. p. 253.—Sm. Engl. Fl. v. iv. p. 38.—Hook. Brit. Fl. p. 377.—Macr. Man. Brit. Bot. p. 229.—Grev. Fl. Edin. p. 186.—Fl. Dev. pp. 144 & 132.—Johnst. Fl. Berw. v. i. p. 193.—Rev. G. E. Smith's Pl. S. Kent, p. 59.—Winch's Fl. Northumbl. and Durh. p. 57.—Walker's Fl. of Oxf. p. 258.—Bab. Fl. Bath. p. 49, Supp. p. 95.—Irv. Lond. Fl. p. 112.—Luxf. Reig. Fl. p. 76.—Cow. Fl. Guide, p. 36.—Mack. Fl. Hibern. p. 280.—Epipactis Nidus Avis, Sw. Orch. p. 66.—Willd. Sp. Pl. v. iv. pt. 1. p. 87.—Perry's Pl. Varvie. Selectæ, p. 74.—Neottia Nidus Avis, Lind. Syn. p. 258.—Neottia abortiva. Gray's Nat. Arr. v. ii. p. 209.—Ophrys Nidus Avis, Linn. Sp. Pl. p. 1339.—Huds. Fl. Angl. (2nd edit.) p. 388.—Sm. Fl. Brit. v. iii. p. 931.—With. (7th edit.) v. ii. p. 36.—Lightf. Fl. Scot. v. i. p. 522.—Sibth. Fl. Oxon. p. 12.—Abbot's Fl. Bedf. p. 194.—Purt. Mid. Fl. v. ii. p. 426; & v. iii. p. 378.—Relh. Fl. Cant. (3rd ed.) p. 362.—Orchis abortiva fusca, Bauh. Pin. p.86.—Rudb. Elys. v. ii. p. 218. f. 1.—Nidus Avis, Ray's Syn. p. 382.—Satyrium abortivum, sive Nidus Avis, John. Ger. p. 228.

Fig. 1. Front view of a Flower.-Fig. 2. Side view of a portion of the Column; At the upper lip of the Stigma, with the pollen masses on its upper surface; b. the lower lip of the Stigma; c. the Anther, having discharged its pollen masses.—Fig. 3. Portion of the Column seen from behind, the auther being removed; a. upper lip of Stigma with pollen masses; b. lower lip of ditto; c. recurved tubercle.—Fig. 4. Back view of Anther, removed from fig. 3.—Fig. 5. Front view of Anther before it has discharged its pollen masses.—Fig. 6. Granules of which pollen masses are composed.—Fig. 7. Capsule.—All, except fig. 1. more or less magnified. Figs. 2, 3, 4, 5, & 6, from Fl. Lond.

[·] So called in honour of Dr. MARTIN LISTER, an eminent British Naturalist. HOOKER. † See f. 8. n. t. ‡ See f. 33, n. ‡.

Localities.—In shady woods, especially Beech, on a chalky or loamy soil.— Oxfordsh. Woods near Mapledurham; and Straw Hall: Mr. A. R. Birt. Tar Wood; and Stokenchurch Woods: Dr. Sibthorn. Plentiful in Stokenchurch Wood; and Stokenchurch Woods: Dr. Sibthorn. Plentiful in Stokenchurch Woods, in 1839: W. H. Baxter. Blenheim Park Plantations; and Bladon Heath: G. Coles, Esq.—Berkshire; In Bagley Wood near Oxford: Mr. James Benwell, and W. B. In a wood near Cumnor Hill: N. B. Young, Esq. Beech woods about Hurley: Sir J. E. Smith. Plentiful in Beech woods between Pangbourn and Reading; 1839, W. H. Baxter. Steatley Wood; H. Woollcomee, Esq.—Beds. Clapham Paik Wood; and Hostler's Wood, Chilton Green, near Dunstable: Rev. C. Abbot.—Bucks; Marlow Wood; Chilton Green, near Dunstable: Rev. C. Abbot.—Bucks; Marlow wood; and Wendover: Mr. W. Panthin, jun.—Cambridgesh. Madingley Wood; and Hall Wood: Rev. R. Rehinan,—Cumberland; Buckham Wood: Wood; and Hall Wood: Rev. R. Rehinan,—Cumberland; Buckham Wood: Mr. Woonward,—Derbysh. Walk by the river, near Willersley, Mrs. Habb. Mr. Woonward.—Derbysh. Walk by the river, near Wilersley: Mrs. Hard-castle, in Mr. A. Jewitt's Madlock Companion.—Devon; Woodbory Hill: Rev. J. JERVIS. Ugbrooke Park: Mr. Jacon. - Dorset; In the Chase, a little to the East of Rushmore Lodge; and Little Wood at Chettle: Rev. Mr. Chaf-FIN.—Durham; Castle Eden and Hawthorn Denes, and Whorlton-haugh Wood, Cocken: N. J. Winch, Esq.—Essex; On Epping Forest, not far from the gate of a wood, called the Sale, near the Hale End; on a hill called the Hawk; and in a wood on Laindon Hills: B. G.—Gloucestersh. Dowdeswell Wood, near Cheltenham: E. F. Witts, Esq. - Hants; Near Petersfield: Mr. W. Pamplin, jun. In Holt and Wickham Woods: Dr. Pulterer. Selborne, in the Long Lith under the shady beeches among the dead leaves; in Great Dorton among the bushes; and on the Hanger, plentifully: Rev. G. Whitte.— Kent; A bout Maidstone; on Roehill; Woods about Charlton; near the little brook by the High Rocks, Tunbridge, towards Rusthall Common; and in a wood between Alkham and Ewel Minnis: B. G. Woods near Bexley, and Dartford; Mr. Graves. In a copse, near Sandling Lodge: Mr. W. Hutchinson.—Lancash. About Newton Cartmel: B. G.—Middlesex; In White Heath Wood, Harefield: B. G.—Norfolk; About Heyden; Gawdy Hall Wood at Harleston: B. G.—Northamptonsh. In Rockingham Forest, Wansford: Lond. Fl.—Northumberland; In Capheaton and Wallington Woods: Miss Emma TRIVELYAN. In Willimoteswick Dene and near Wardiew: M. J. Thompson. TRIVILIAN. In Willimoteswick Dene and near Wardiew: M. J. Thompson. In Twiz-II Woods: Miss Forster.—Notts; Worksop Mannor: H. Biddene, Seq.—Shropsh. Benthale Hedge, near Coalport: H. Biddene, Seq.—Somerset; In a wood above the Bradford road; in Friary Wood at Hinton Abbey; Smallcombe Wood; in Wolley and Hampton Woods; Rudloe; and Claverton Wood: Fl. Bath.—Suffolk; In Sir C. Davers' Wood, called the Pink; and in woods at Great and Little Saxham; Rushbrook; Parham; and Onehouse: B. G.—Surrey; In Norbury Park near Croydon: and on Ranmer Common: B. G. In Gatton Park: A. Irvie. Forest Hill Wood, Peckham: Mr. W. Christy. Woods at Fuller's Earth Pits, at Nuffeld, and in the copse by Wray Common: G. Luxfoud.—Sussex; New Timber Woods, Danny Woods, Huist Pierpoint, near the pond: B. G.—Warwicksh. Ragley Woods; Oversley Wood; and Middleton Woods: Rev. Mr. Bre.—Westmoreland; Buckham Wood near Lowther; and near Honey-bee-yate by Kendal: B. G. ham Wood near Lowther; and near Honey-bee-yate by Kendal: B. G.— Worcestersh. In a copse at Kemscy: Dr. STREETEN.— Forksh. In many parts of the County.—In WALES, SCOTLAND, and IRELAND, but rather rare. Perennial.-Flowers in May and June.

Root of numerous, crowded, tufted, simple, thick, cylindrical, brownish, fleshy fibres. Stem solitary, from a foot to 18 inches high, upright, simple, angular, hollow, without leaves, but furnished with a few membranous, alternate, loose sheaths. Flowers numerous, brown, in an oblong, rather lax spike. Sepals and Petals loosely connivent into a globe, somewhat membranous. Lip longer than the petals, of a deeper colour; concave at the base; cloven at the extremity into 2 blunt, rounded, widely-spreading lobes. Column elongated, semicylindrical, without any lood. Anther terminal, egg-shaped, hemispherical at the back; a little concave in front, with 2 close, strap-shaped, parallel cells, depositing the yellow, oblong, farinaceous pollen-masses on the back of the oblong upper lip of the stigma (f. 2, a.), the under lip (f. 2, b.) of which is short and rounded. Capsule egg-shaped, ribbed, glandulose.

The whole plant is of a brown or pallid huc, a colour which is peculiar to parasitical plants in general. In habit it is closely connected with Orobanche, Lathræa, and Monotropa (t. 275); but whether it be truly parasitic, or nourished by decayed leaves and bark (among which its roots are imbedded), seems questionable. A very correct and beautiful portrait of this plant was given by Mr. Curtis, in his "British Entomology," about four or five years ago. The accompanying plate is from a specimen picked in Stokenchureh Woods, by my son, W. H. Baxter, Curator of the Royal Horticultural and Botanical Gardens, Bath.





ORNITHOPUS *.

Linnean Class and Order. DIADE'LPHIAT, DECA'NDRIA.

Natural Order. LEGUMINO'S.E., Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Maegilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259 .- Loud. Hort. Brit. p. 509 .- Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—Hook. Brit. Fl. (4th ed.) p. 404.—Mack. Fl. Hib. p. 73.—LEGUMINA'CE.E., Loud. Arb. Brit. p. 561.—PAPILIONA'-CE.E., Linn.—ROSALES; sect. CICERINE; subsect. LOTIANE; type, LOTACEE; subtype, HEDYSARIDE; Burn. Outl. of Bot. pp. 614, 638, 642, & 657.

Calyx (fig. 1.) inferior, tubular, permanent; the GEN. CHAR. margin in 5, nearly equal, teeth. Corolla (see figs. 2 & 3.) papilionaceous, of 5 petals; standard (fig. 4.) inversely egg-shaped, ascending, entire; wings (fig. 5.) rather smaller, inversely eggshaped, eurved upward; keel (fig. 6.) still smaller; of 2 slightly turnid, converging, rounded petals, with slender distinct claws. Filaments (see fig. 7.) 10, 9 in one compressed tube, slit along the upper edge (fig. 7, a.); the tenth hair-like, distinct (fig. 7, b.); all curved upward at the extremity. Anthers minute, roundish. Germen (see fig. 7, c.) strap-shaped, compressed. Style (see fig. 7, c.) slender, ascending. Stigma capitate (knobbed), naked. Legume (fig. 8.) compressed, curved, of many single-seeded, indehiseent joints, whose sides are equal. Seeds (fig. 10.) roundish.

Distinguished from other genera, with a smooth style, in the same class and order, by the compressed, curved legume of many

single-seeded, indehiscent joints, with parallel margins.

One species British.

ORNITHOPUS PERPUSI'LLUS. Very-small Bird's-foot. Common Bird's-foot.

SPEC. CHAR. Leaves pinnate; leaflets small, numerous. Flowers capitate, accompanied by a leaf. Legumes curved upwards, beaked.

Engl. Bot. t. 369.—Curt. Fl. Lond. t. .—Linn. Sp. Pl. p. 1049.—Huds, Fl. Angl. (2nd ed.) p. 321.—Willd. Sp. Pl. v. iii. pt. 11. p. 1155.—Sm. Fl. Brit. v. ii. p. 777.; Engl. Fl v. iii. p. 290.—With. (7th ed.) v. iii. p. 847.—Gray's Nat. Arr. v. ii. p. 618.—Lindl. Syn. p. 87—Hook. Brit. Fl. p. 326.—Macr. Man. Brit. Bot. p. 56.—Lightf. Fl. Scot. v. i. p. 399.—Sibth. Fl. Oxon. p. 225.—Abbot's Fl. Bed. p. 159.—Davies' Welsh Bot. p. 70.—Purt. Midl. Fl. v. i. p. 349.—Relh. Fl. Cant. (3rd edit.) p. 295.—Hook. Fl. Scot. p. 216.—Grev. Fl. Edin. p. 158.—Fl. Devon. pp. 122 & 175.—Winch's Fl. of Northumb. and Durh. p. 48.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 276.—Walker's Fl. of Oxf. p. 210.—Pamplin's Plants of Battersea and Clapham, p. 14.—Perry's Pl. Varvic. Selectæ, p. 62.—Bab. Fl. Bath. p. 13.—Irv. Lond. Fl. p. 176.—Luxf. Reig. Fl. p. 64.—Mack. Catal. of Pl. of 1rel. p. 67.; Fl. Hibern. p. 85.—Ornithopodium radice nodosa, Ray's Syn. p. 326.—Ornithopodium minus, Johnson's Gerarde, 1241.

+ See folio 77, note +.

Fig. 1. Calyx .- Figs. 2 & 3. Calyx and Corolla .- Fig. 4. Standard, or Banner .-Fig. 5. One of the Wings.—Fig. 6. Kecl.—Fig. 7 Stamens and Pistil; a. Nine united Stamens; b. the separate one; c. Stigma.—Fig. 8. A Legume.—Fig. 9. A single joint of Legume.—Fig. 10. A Seed.—All, except fig. 2. more or less magnified.

[·] From ornis or ornithos. Gr. a bird; and pous, Gr. a foot; from the similarity of the seed-vessels to a bird's foot. HOOKER. # See folio 117, note #.

LOCALITIES.—On banks, road-sides, heaths, and pastures, in a sandy or dry gravelly soil; frequent.—Oxfordsh. On Shotover Hill, close to the Ochre-pits, on a bank sloping to the South, in great abundance; June 15, 1831. Between Shotover Hill and Cuddesdon on a bank by the road-side near the two Windmills. W. D. Stately soil, riequent.—Oxforash. On Sontover Hill, close to the Ocinic-puts, on a bank sloping to the South, in great abundance; June 15, 1831. Between Shotover Hill and Cuddesdon on a bank by the road-side near the two Windmills: W. B.—Berks; On a Common between Besselsleigh and Tubney, abundant: 1839, W. B.—Bedfordsk. Southill; Ampthill; and Aspley: Rev. C. Abbot.—Cambridgesh. Gamlingay, near the Wind-mills; and by White Wood: Rev. R. Relhan.—Cornwall; Pillaton: H. Woollcombe, Esq.—Devon; Milbourn Down, near Newton Abbot. Canonteign near Christowe; North Bovey; Manaton; Ilsington; Woodhury Hill; and Blackhill: Messrs. Jones and Kingston, in Fl. Devon.—Durham; On Sunderland Ballast-hills; and on dry banks near Urpeth: N. J. Winch, Esq.—Essex; Near Woodford: Mr. R. Wabner. Epping Forest: Mr. D. Cooper. On Warley Common: Dr. Æneas Mac. Interf.—Hannsh. Near Gosport: Rev. R. Palmen, in Mag. Nat. Hist. v. i. p. 276—Kent; Blackheath, and Keston Common: Mr. D. Cooper.—Lancash. Park Quarry, Liverpool: Dr. Bostock.—Leicestersh. Near Grooby Pool: Rev. A. Bloxam.—Middlesex; Hannpstead Heath: Mr. D. Cooper.—Norfolk; Moushold Heath, near Norwich, and elsewhere: Mr. Woonward.—Notts; In Notingham Park, on Radford Lings, and many other barren places: Dr. Deering.—Shropsh. Morf, near Bridgnorth: Hall. On the slopes of the Sharpstones Hill, near Shrewsbury: W. A. Leighton, Esq. in M. N. H. Common on the top of Whiteliff, near Ludlow: Dr. Babington, in Plymley's Agricult. of Shropshire. Somersetsh. Brendon Hill, near Bristol: Mr. Swain. Park Lodge, Keynshan: Dr. Davis.—Staffordshire; Kinver: Hall. Near Lichfield: Mr. Whately, Surrey; Clapham and Wandsworth Commons: Mr. W. Pamplin, jun. Wimbledon Common; and Barnes Common: Mr. D. Cooper, in Fl. Metrop. Grayswood: Miss C. Perry, ibid. On Reigate Heath, and elsewhere: Mr. G. Luxford. Doiking: Dr. Withening.—Warwicksh. Near Rughy; on the lower Hillmorton road: Rev. A. Bloxam. Winson Green; and Washwood Heath, near Birmingham: Drs. Stokes and Witheninster; and Washwood Heath, near B SCOTLAND, and in IRELAND, but rare.

Annual.—Flowers from May to September.

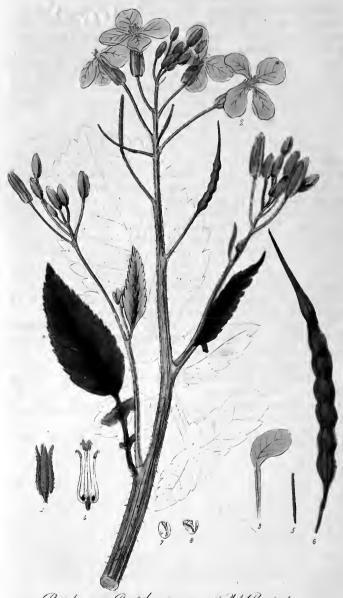
Root slender, branched, with many long, whitish, fibres, which are frequently furnished with small tubercles. Stems numerous, procumbent, from 3 to 10 or 12 inches long, simple, round, furrowed, downy, leafy. Leaves pinnated, hairy, especially at the back, the radical ones spread on the ground, on short petioles; those on the stems alternate, sessile; leaflets small, egg-shaped, or elliptical, opposite, or alternate, of from 5 to 12 or 14 pair, with a terminal one about the same size and figure. Stipulas very small, upper ones awl-shaped, scarcely visible; lower ones strap-shaped, pointed, united laterally to the petiole. Peduncles longer than the leaves. Flowers from 1 to 5 in each little head or tuft, closely accompanied by a pinnated bractea of but few leaflets. Calyx downy, coloured. Corolla very small; standard very slightly notched at the end, white, beautifully veined with crimson; wings white, with a reddish tinge; heel yellowish. Legumes 1 to 5, rather compressed, pointed, curved upwards, finely hairy, wrinkled lengthwise when dry, their joints elliptical, and moderately compressed. Seeds roundish, one in each joint.

This elegant little plant is a native throughout Europe and the North of Africa,

on heaths and gravelly pastures.

The beauty of its flowers when closely examined, and the great resemblance which its curved articulated legumes bear to the claws of a bird, render it an object highly deserving of attention. Sir J. E. SMITH observes, that when it does not produce pods (legumes), it propagates itself by the grains or tubercles of its root, though in general the root is annual.

Alleria States



Raphanew Rafelanistrum. Wild Rudesh C

RA'PHANUS*.

Linnean Class and Order. TETRADYNA'MIA†, SILIQUO'SA‡. Natural Order. CRUCI'FERƧ, Juss. Gen. Pl. p. 237.—Sim. Gram. of Bot. p. 138.; Engl. Fl. v. iii. p. 153.—Rich. by Macgilliv. p. 498.—CRUCIFERÆ; subord. Orthoplo'ceæ; tribe, Rapha'-Neæ; Lindl. Syn. pp. 20 & 34.; Introd to Nat. Syst. of Bot. pp. 14 to 18.—Loud. Hort. Brit. pp. 498 & 499.; Mag. Nat. Hist. v. i. pp. 143 & 240.—Don's Gen. Syst. of Gard. & Bot. v. i. pp. 146, 150, & 256.—Mack. Fl. Hibern. pp. 16 & 27.—Hook. Brit. Fl. (4th ed.) pp. 397 & 398.—Rosales; subord. Rheeadose; sect. Rheeadinæ; type, Brassicaceæ; subtype, Raphanidæ; Burn. Outl. of Bot. v. ii. pp. 614, 784, 847, 853, & 860.—Siliquosæ, Linn.

GEN. CHAR. Calyx (fig. 1.) inferior, erect; of 4, oblong, parallel, converging, deciduous sepals; two of them slightly prominent at the base. Corolla (fig. 2.) cruciform, of 4, inversely egg-shaped, or inversely leart-shaped, spreading petals, with strap-shaped, upright claws (see fig. 3). Filaments (fig. 4.) 6, tetradynamous, awl-shaped, simple, upright. Anthers (see fig. 4.) oblong, a little spreading. Glands (see fig. 4.) 4, 2 at the inside of the shorter filaments; 2 at the outside of the longer. Germen (see fig. 5.) cylindrical, tapering. Style awl-shaped. Stigma capitate (knobbed), small, entire. Pod (siliqua) (see fig. 6.) indehiscent, oblong, imperfectly cylindrical, tapering upward, irregularly tumid, divided across into many cells, or separating into several pieces. Seeds in a single row, globose, pendulous. Cotyledons (see figs. 7 & 8.) rather thick, conduplicate (doubled together) [0 > >.]

The upright calyx; and the tumid, imperfectly jointed pod, without valves; will distinguish this from other genera, with con-

duplicate cotyledons, in the same class and order.

Two species British.

RA'PHANUS RAPHANI'STRUM. Wild Radish ||. Jointed Charlock. White Charlock.

SPEC. CHAR. Leaves simply lyrate. Pods jointed, striated, of 1 cell, from 3- to 8-seeded; longer than the style.

Engl. Bot, t. 856.—Cnrt. Fl. Lond, t. 267.—Mart. Fl. Rust, t. 71.—Linn. Sp. Pl. p. 935.—Huds. Fl. Angl. (2nd edit.) p. 289.—Willd. Sp. Pl. v. iii. pt. 1, p. 560.—Sm. Fl. Brit. v. iii. p. 723.; Engl. Fl. v. iii. p. 226.—With. (7th ed.) v. iii. p. 788.—Lindl. Syn. p. 34.—Hook. Brit. Fl. p. 310.—Maer. Man. Brit. Bot. p. 23.—Lightf. Fl. Scot. v. i. p. 362.—Sibth. Fl. Oxon. p. 203.—Abh. Fl. Bedf. p. 147.—Davies' Welsh Bot. p. 65.—Purt. Midl. Fl. v. i. p. 312.—Relh. Fl. Cant. (3rd ed.) p. 273.—Hook. Fl. Scot. p. 294.—Grev. Fl. Edin. p. 148.—Fl. Devon. pp. 144 and 191.—Johnst. Fl. Berw. v. i. p. 148.—Winch's Fl. Northumb. & Durh. p. 45.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 262.—Walker's Fl. of Oxf. p. 197.—Dick. Fl. Abred. p. 46.—Irv. Lond. Fl. p. 165.—Luxf. Reig. Fl. p. 59.—Mack. Catal. Pl. Irel. p. 63.; Fl. Hibern. p. 30.—Raphanus sylvestris, Johnson's Gerarde, p. 240.—Raphanistrum vulyare, Gray's Nat. Arr. v. ii. p. 687.—

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. A Petal.—Fig. 4. Stamens.—Fig. 5. Germen.—Fig. 6. Pod or Siliqua.—Fig. 7. A Seed divested of its testa.—Fig. 8. A transverse section of the same, showing the conduplicate or folded incumbent cotyledons.

^{*} From ra, Gk. quickly; and phainomai, Gk. to appear; from its rapid vegetation. Hooker.

† See f. 38, n. +. ‡ See f. 62, n. ‡. § See folio 38, a. | From radix, a root.

Raphanístrum siliquá articulatá glabrá, majore et minore, Ray's Syn. p. 296.—Rapistrum flore luteo, siliquá glabrá articulatá, Ray's Syn. p. 296.

Localities.—In corn-fields; often a troublesome weed.

Annual.—Flowers from June to August.

Root simple, tapering, slender, fibrous; of a pale brown colour. Stem from 1 to 2 feet high, upright, branched, hispid, leafy, of a somewhat glaucous colour; its bristles prominent and pungent. Leaves alternate, petiolated, simply lyre-shaped, rough; the lower ones with from 4 to 8, alternate, oblong, lateral lobes, and a large, rounded, terminal one; upper leaves oblong, or spear-shaped, pointed, undivided; all bluntly serrated, or toothed, the teeth often purplish at the tip. Flowers corymbose, rather large. nerally bristly; sepals strap-shaped, upright, parallel, closing together, except at the tip, where they are a little spreading. Corolla straw-coloured, or white, said sometimes to be purplish, but always veined with dark lines; petals inversely egg-shaped, their claws a little longer than the calyx. Pods (silique) in long clusters, upright, knobbed or apparently jointed, smooth, striated lengthwise when ripe, ending in a strap-shaped, flat, smooth beak. Seeds large, roundish, of a rusty-brown colour, very smooth, one in each joint of the pod.—Sir J. E. SMITH says, the germen is divided into 2 cells, but the partition is obliterated, and confounded in one spongy mass as the pod ripens.

Wild Radish is a native, in corn-fields, throughout the whole of Europe. Linnaus, in a dissertation in the Amanitates Academica (vol. vi. p. 433), informs us, that in wet seasons this weed abounds among barley in Sweden, and that being ground with the corn, the common people, who eat barley bread, are afflicted with convulsive complaints, or an epidemic spasmodic disease, called, from it, Raphania.—M. VILLARS, however, remarks that this weed is so common in some of the cold moist vallies of Dauphiny, that it must make great ravages there, if it were as dangerous as LINN.EUS has represented it, and yet this spasmodic disorder is unknown in SPIELMANN, BECKMANN, and others, have written against LINNEUS on this subject; and KROKER has proved the plant to be harmless, and recommends it as a nutritious food for domestic quadrupeds, and as very agreeable to bees.—From experiments made by LINNEUS, it appears that horses eat it, but cows and goats refuse it. Professor BURNETT thinks the deleterious effects ascribed to this plant in Sweden, are more probably owing to a morbid condition of the seeds, or to the growth of noxious fungi on them, than to any inherent unwholesome principle; if this is not the case it will be difficult to account for Raphania not appearing every year, as the Raphanus is constantly and abundantly blended with corn, both in Sweden and in this country. England, however, where the plant abounds, Raphania is unknown.

Much valuable and interesting information respecting the nature and origin of *Raphania* and many other diseases, may be obtained from Professor Burnett's "Outlines of Botany;" a work which no botanical or medical Student should be without.

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Petroselinum Segeture Corn Paroley. O Mathewa Del & Sc. Put by W. Buster, Barrie Garden Orient 1810.

PETROSELI'NUM*.

Linnean Class and Order. PENTA'NDRIAT, DIGY'NIA.

Natural Order. Umbelli'feræ‡, Juss. Gen. Pl. p. 218.—Sm. Gram. of Bot. p. 132.-Lindl. Syn. p. 111; Introd. to Nat. Syst. of Bot. p. 4.—Rich. by Macgilliv. p. 463.—Loud. Hort. Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 235.—Mack. Fl. Hibern. p. 113.—Hook. Brit. Fl. (4th edit.) p. 408.—Umbel-LATE, Linn.—ROSALES; sect. ANGELICINE; type, ANGELICACE; subtype, Angelicidæ; Burn. Outl. of Bot. v. ii. pp. 614, 770, 773. & 774.

GEN. CHAR. Flowers (fig. 1.) white or greenish, uniform; those in the disk of the umbel frequently sterile. Calyx obsolete, or bluntly toothed. Corolla (see fig. 1.) of 5, roundish, entire, petals, with a narrow, incurved point. Filaments (see fig. 1.) 5, threadshaped, spreading, longer than the corolla. Anthers roundish. Germen (see fig. 1.) inferior, egg-shaped, striated. Styles (see f. 1.) 2, very short and thick, divergent, each with a short, conical, rather crenulated base (stylopodium). Stigmas blunt. Fruit (fig. 3.) eggshaped, contracted at the sides, nearly double. Carpels (see fig. 4.) with 5, equal, slender ridges, of which the lateral ones form a Channels with single vitta. Seeds gibbous, convex, Universal involucrum of few leaves; partial flattish in front. involucrum of many.

The nearly obsolete ealyx; the roundish petals with a narrow, inflexed point; the egg-shaped, nearly double fruit; and the carpels with 5 slender ridges, and a single nitta in each channel; will distinguish this from other genera in the same class and order.

Two species British.

PETROSELI'NUM SE'GETUM. Corn Parsley. Corn Honewort.

SPEC. CHAR. Root-leaves pinnated; leaflets roundish eggshaped, lobed, cut, and serrated; upper leaves with strap-shaped, very imperfect leaflets. Rays of the Umbel few and unequal. Involucrum of 2 or 3 leaves.

Koch, Umb. p. 128. fide Don.—Lind. Syn. p. 123.—Hook. Brit. Fl. p. 128.—
Macr. Man. Brit. Bot. p. 97.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 280.—
Bab. Fl. Bath. p. 21.—Irv. Lond. Fl. p. 235.—Sison ségetum, Linn. Sp. Pl. p.
362.—Engl. Bot. t. 228.—Jacq. Hort. Vind. v. ii. p. 63. t. 134.—Iluds. Fl. Angl.
(2nd edit.) p. 120.—Willd. Sp. Pl. v. i. pt. 11. p. 1436.—Sm. Fl. Brit. v. i. p. 316;
Engl. Fl. v. ii. p. 61.—With. (7th edit.) v. ii. p. 380.—Sibth. Fl. Oxon. p. 97.—
Abbot's Fl. Bedf. p. 63.—Purt. Midl. Fl. v. i. p. 151.—Relh. Fl. Cant. (3rd edit.)
p. 119.—Hook. Fl. Seot. p. 91.—Rev. G. E. Smith's Pl. S. Kent., p. 17.—Fl. Dev.
pp. 51 & 167.—Walker's Fl. Oxf. p. 79.—Irv. Lond. Fl. p. 195.—Sium segetum,
De Cand. Fl. Gall. p. 355.—Gray's Nat. Arr. v. ii. p. 506.—Sium arvense sive
segetum, Ray's Syn. p. 211.—Blackst. Sp. Bot. p. 91.—Selinum sii folii; J.
Goodyer, in Johnson's Gerarde, p. 1018.

Fig. 1. A separate Flower.-Fig. 2. A Petal.-Fig. 3. A Fruit.-Fig. 4. A Fruit cut transversely, showing the single vittæ.

[•] From petros, Gr. a rock; and selinon, Gr. parsley; it being a native of stony or rocky places.

[†] See folio 48, note †.

\$\delta\$ See folio 235, a.

Localities.—In rather moist fields, and on ditch-banks, on a calcarious soil.—Oxfordshire; South Leigh: Dr. Sibtinopper Fields on the East side of the Peat-bogs going from Bullington-green to Cheyney-lane, on the North side of Cowley Marsh; near the copse on the South side of Shotover Hill; on the Banbury road near the 5th milestone from Oxford; also between Summer's Town and Kidlington Toll-gate; and road-side near Elsfeld: W. B.—Berks; Near Botley, on the road to Ensham: W. B.—Beds; Goldington, and Claplam: Rev. C. Abbot.—Bucks; Near Eton: Mr. Gotobed.—Cambridgesh. Madingley Road, near Cambridge; Haddenham: Rev. R. Relihan. By a little stream on the right of the foot-path to Coton; and in several places in the first mile of Barton Road: N. B. G.—Devon; Chudleigh; Ashburton; Ilsington; and Lympstone: Fl. Devon. Hedges near Plymouth: N. B. G.—Dorset; Langton cornfield near Blandford: Dr. Pulteney. East side of the Backwater near Weymouth: Rev. A. Bloam.—Essex; About Walthamstow; Chingford; Gray's Thurrock; South End; and elsewhere: Mr. E. Foster, jun. On a bank in Hagger Lane at the end of Hale-end Lane, Walthamstow: L. W. Dillwyn, Esg.—Gloucestersh. Near Bristol: Miss Wonsley, in N. B. G.—Hants; About Maple-Durham: Mr. John Goodyen, in Gerarde's Herbal.—In one of the little planted inclosures, near the Beech, between Southampton and Netley; and near Ryde: N. B. G.—Kent; Near Northfleet: Blackstone. About half a mile from New Romney on the road to Rye: Mr. J. Woods, jun. Near Ewell: E. Jacob, Esg. Wouldham: J. N. Winge, Esg. Between Greenwich and Woolwich: Mr. D. Cooden.—Middlesex; By the road-side at Eaton: Mr. Martyn.—Norfolk; At Binham: Mr. Crowe. Hedge adjoining a public-house at Acle, by the Dam: Mr. Wigg.—Northmaptonsh. In Oxenden, on a bank on the North side of the street, a little above the White Hoise Inn: Monton. Near Kelmarsh: Mr. Hanburn.—Somersetshire; At Swainwtick: Mr. Barbigton. Wembdon, and Stoke-courey: Mr. J. C. Collins, in N. B. G.—Surrey; Coulsdon: Mr. E. Wood. Between Esher and West Moulse

Annual, or often Biennial.-Flowers in July and August.

Root small, tapering, very tough. Stem from a foot to 18 inches high, very much branched, round, striated, slender, rush-like, somewhat leafy; branches spreading in every direction. Leaves pinnate, on long petioles; those from the root long and narrow, consisting of from 7 to 19, nearly sessile, roundish egg-shaped, smooth, serrated, cut, often somewhat lobed, leafiets; Stem-leaves few, the upper ones with strap-shaped, very imperfect, leaflets. Universal Umbels of few (often only 2 or 3) very unequal rays, with an involucrum of about 2 leaves. Partial Umbels drooping, each of a few extremely unequal rays, with an involucellum (partial involucrum) of 4 or 5, spear-shaped, or awl-shaped, leaves. Flowers very small, regular, white, or flesh-coloured. Calyx of 5, minute, bluntish teeth. Corolla of 5, very small, egg-shaped, strongly involute petals. Stamens with purplish anthers. Styles extremely short, each with a broad, pale, depressed base. Fruit egg-oblong, crowned with the very short styles, and spreading blunt stigmas. Carpels (seeds, Sm.) oblong, strongly ribbed, with small intermediate ribs alternate with the three principal ones.

Mr. Don observes, that the flowers and fruit agree with the rest of the genus Petroselinum, but that the habit is that of Pimpinella. The fruit is aromatic and pungent, as is the whole plant in some degree.—The other British species is P. sativum, or $Common\ Garden\ Parsley$; distinguished from this by the doubly pinnated root-leaves, and the many-rayed umbels.

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Andromeda polifolia. Marsh Andromeda. A sufethin. Put by W. Basto, Botanie Gardon, Coford 1840. Machenes Se

ANDRO'MEDA*.

Linnean Class and Order. DECA'NDRIA†, MONOGY'NIA.

Natural Order. ERI'CEÆ, Brown's Prod. p. 557.—Lindl. Syn.
p. 172.; Introd. to Nat. Syst. of Bot. p. 182.—Loud. Hort. Brit. p.
523.—Mack. Fl. Hibern. p. 179.—Hook. Brit. Fl. (4th ed.) p. 411.—

ERICA'CEÆ; subtribe, ANDROME'DEÆ, Don's Gen. Syst. of Gard.
and Bot. v. iii. pp. 785 & 787.—Loud. Arb. et Frutic. Brit. pp. 1076
and 1077.—ERICINEÆ, Rich. by Macgilliv. p. 450.—ERICÆ, Juss.
Gen. Pl. p. 159.—Sm. Gr. Bot. p. 115.—Syringales; subord.

ERICOSÆ; sect. ERICINÆ; type, ERICACEÆ; subtype, ERICIDÆ;
Burn. Outl. of Bot. v. ii. pp. 900, 937, 944, 946, & 948.—BiCORNES, Linn.

GEN. CHAR. Calyx (see fig. 1, a.) inferior, small, coloured, of 1 sepal, in 5 deep, egg-shaped, pointed segments, permanent. Corolla (see fig. 1, b.) of 1 petal, globose, or egg-shaped, with a contracted, 5-toothed mouth (see fig. 2). Filaments (see figs. 3 & 4.) 10, awl-shaped, upright, shorter than the corolla, slightly attached to its base. Anthers incumbent, of 2 short cells, opening by two terminal pores, surmounted by a pair of horns. Germen (see fig. 5.) roundish, with 5 furrows. Style (see fig. 5.) terminal, cylindrical, longer than the stamens, permanent. Stigma blunt, notched. Capsule (see fig. 6.) superior, roundish, with 5 angles, 5 cells, and 5 valves, with the dissepiments (partitions) from the middle of the valves (see fig. 7). Seeds (fig. 8.) numerous, minute, elliptical, compressed, polished, with a lateral, strap-shaped hilum.

The small, 5-toothed calyx; the monopetalous, globose, or egg-shaped corolla, with a 5-toothed, reflexed limb; and the 5-celled, 5-valved capsule, with numerous, minute secds; will distinguish

this genus from others in the same class and order.

One species British.

ANDRO'MEDA POLIFO'LIA. Polium-leaved Andromeda. Marsh Andromeda. Wild Rosemary. Poly Mountain. Marsh

Cistus. Moorwort. Marsh Holy Rose.

SPEC. CHAR. Leaves alternate, oblong, their margins revolute; glaucous beneath. Segments of the calyx egg-shaped, spreading, white, sometimes tipped with red. Corolla egg-shaped, flesh-coloured, or pale red.

Engl. Bot. t. 713.—Linn. Fl. Lapp. (2nd ed.) p. 131. t. 1. f. 2.; Sp. Pl. p. 564.—Huds. Fl. Angl. (2nd ed.) p. 176.—Willd. Sp. Pl. v. ii. pt. 1. p. 610.; var. media.—Sm. Fl. Brit. v. ii. p. 441.; Engl. Fl. v. ii. p. 251.—With. (7th ed.) v. ii. p. 520.—Gray's Nat. Arr. v. ii. p. 399.—Lindl. Syn. p. 173.—Hook. Brit. Fl. p. 188.—Macr. Man. Brit. Bot. p. 150.—Lightf. Fl. Scot. v. i. p. 214.—Purt. Midl. Fl. v. iii. p. 35.—Hook. Fl. Scot. p. 125.—Winch's Fl. of Northumbl. and Durh. p. 27.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 829.—Loud. Arb. et Frutic. Brit. p. 1106,

Fig. 1. A Flower; a. the calyx; b. the corolla.—Fig. 2. Front view of a Flower.
—Fig. 3. Corolla opened to show the 10 stamens.—Fig. 4. A single Stamen.—
Fig. 5. Germen, Style, and Stigma.—Fig. 6. Capsule.—Fig. 7. A separate valve of ditto, a little magnified.—Fig. 8. A Seed.

^{*} So named by Linnæus, in allusion to the story of Andromeda, who was chained to a rock, and exposed to the attacks of the monsters of the ocean; so does this beautiful tribe of plants grow in dreary and northern wastes, in the midst of swamps, and loathsome reptiles.

† See folio 37, note +.

with a figure. - Walker's Fl. of Oxf. p. 304,-Irv. Lond. Fl. p. 245,-Mack. Catal. Pl. of Irel. p. 39.; Fl. Hibern. p. 179.—Ledum palustre nostras, arbuti flore,

Ray's Syn. p. 472,-Blackst. Sp. Bot. p. 44.

LOCALITIES .- In mossy bogs in the mountainous parts of England and Ire-LOCALITIES.—In mossy logs in the mountainous parts of England and Ireland, and in the low-lands of Scotland.—Bucks; On Iver Healt: Mr. J. RAYER.—Cheshire; Moors and bogs, frequent: Mr. Bradbury. Moors near Stockport: Mr. L. Howard.—Cumberland; Kirkland; Cross Fell; Keswick; and Brampton: Huttenisson. Moss near Bomfield: Rev. J. Doon. Moors near Latrigg: N. J. Winch, Esq.—Lancash. On Causeway Moss, and Rusland Moss, Furness Fells: Mr. Jackson. In Middleton Moss near Lancaster: Mr. Lawson. On the Mossy Moor near Ashton: Mr. O. Sims. "From 18 to 24 inches on Woolston Moss near Warrington:" J. E. Bowman, in N. B. G. On Mosses near Warrington: G. CROSSIELD, Esq.—Norfolk; Peat-bogs, Larlingford: Sir W. J. Hooken.—Northumberl. On the heathy part of Prestwick Carr, and on the Muckle Moss north of the Roman Wall and west of Shewing Shields; also on the Wallington Moors: N. J. WINCH, Esq. On Green Leighton Moss, and at Dardon Lough: Miss Enma Trevelyan. Near Haltwhistle: Mr. John Thompson.—Shropsh. Birch Bog, near Ellesmere, plentifully: Dr. Evans. Whixal Moss: Rev. A. Bloxan.—Somersetsh. Near the beginning of the Mendip Hills from Bath: Mr. Hill, in Blackst. Sp. Bot. On Glastonbury and Burtle Turf Moors: Sir T. G. Cullum.—Staffordsh. On Charlton Moss: Mrs. Acland. Chartley Moss: G. Howitt, Esq. in N. B. G. -Westmoreland; Frequent on Peat-bogs in this county: Hubson. On Brigsteer Moss near Kendal: Mr. Lawson.—Yorksh. Bogs near Howden: Tespale. About Halifax: Mr. Crowe. Hills above Keighley, and abundantly on all the ridge mountains, which separate Yorkshire from Lancashire: Mr. KNOWLTON. Black Moor, near Leeds; Rev. W. Woon. Potteric Car, near Doncaster: M. N. H. Richworth Moor, ten miles from Halifax: N. J. Winen, Esq. Thorn Moor: Mr. Robson. Helwith Moss, and Settle, Craven: Rev. E. F. Witts.—WALES. In Denbighshire, and Glamorganshire.—SCOT-LAND. In Dumfries, Kirkcudbright, Perth, Renfrew, Stirling, and Wigton: N. R. G. 1981. AND. Peach bors: manufactive of the country. M. M. M. G. 1981. N. B. G .- IRELAND. Peat-bogs in many parts of the country: Mr. Mackay. Shrub.—Flowers from May to September.

An elegant little shrub, from 6 to 8 or 10 inches high. Stem smooth, somewhat decumbent at the base, then upright branched and leafy. Leaves irregularly scattered, on very short petioles, oblong, pointed, various in breadth, rigid, their margins strongly revolute; of a dark green on the upper surface, very glaucous, with a prominent rib beneath. Stipulas none. Peduncles from the summits of the branches, single-flowered, white or reddish, occasionally solitary, but usually 3, 4, or more together, with small Calyx white, tipped with red, or sometimes entirely Corolla egg-shaped, or nearly globular, of a delicate pale

pink, or flesh-colour. Capsule upright.

Several varieties of this very pretty little shrub are cultivated in our gardens; Several varieties of this very pretty fittle strub are cultivated in our galuens; two only of which have, I believe, been found wild in Britain, namely, var. a. latifolia, and var. \(\beta\). Media, of Willernow's Sp. Pl. The latter is the common one, the localities of which are given above. The variety latifolia has only one English station given for it, namely, near Bridgewater, Somersetshire, where it was discovered by W. C. Trevellyan, Esq. growing to the height of I or 2 feet.

Mr. Mackay and Mr. Templeton have observed it in Ireland, between Newport and page Glay Abbey country of Down. and Castleconnel, county of Limerick; and near Giey Abbey, county of Down. It is a native of North America.

Dr. WITHERING says, "a very judicious Botanist suspects that the representation in 'English Botany' was taken from a specimen of A. polifolia y. angustifolia, of WILLDENOW, a Labradorian plant."

The drawing for the accompanying plate was made from a native specimen, kindly communicated to me from the neighbourhood of Haltwhistle, by Mr. J. Thompson, Crowhall Mill, near Haydon Bridge, Northumberland, Sept. 3, 1839.

The plant has been used instead of nut-galls. Its decoction, according to

GMELIN, is inebriating; and in Siberia it is resorted to as the source of an ex-

For an interesting account of this charming little shrub, and the reasons for the application, by LINNEUS, of the name of Andromeda to the genus, see Sir J. E. SMITH'S translation of LINNEUS'S Lapland Tour, v.i. p. 188; and LOUDON'S Arb. et Frutic. Brit. p. 1105.





Nathons Del & Sc.

ERO'DIUM*.

Linnean Class and Order. Monade'lphiat, Penta'ndria. Natural Order. Gerania'ceæ, De Cand. Fl. Fr. v. iv. p. 828.—Lindl. Syn. p. 56.; Introd. to Nat. Syst. of Bot. p. 139.—Rich. by Macgilliv. pp. 474 & 475, (Tribe 5.)—Loud. Hort. Brit. p. 506.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 713.—Hook. Brit. Fl. (4th ed.) p. 402.—Mack. Fl. Hibern. p. 54.—Gerania, Juss. Gen. Pl. p. 268.—Sm. Gram. of Bot. p. 147.—Rosales; suborder, Rh@Ados.e; sect. Gruinæ; type, Gerania'ceæ; Burn. Outl. of

Bot. v. ii. pp. 614, 784, 808, & 813.—Gruinales, Linn.

GEN. CHAR. Calyx (see fig. 5.) inferior, of 5 egg-shaped, glandular, pointed, concave, permanent sepals, equal and uniform at the base. Corolla (fig. 1.) of 5 inversely egg-shaped, spreading petals, rather longer than the calyx, generally somewhat irregular. Nectaries (see figs. 2 & 3.) 5 glands, alternate with the petals. Filaments (see figs. 2 & 3.) 10, awl-shaped, united by their base into a cup; 5 of them perfect, nearly as long as the petals; the alternate 5 shorter and abortive. Anthers 5, on the longer filaments only, oblong, versatile. Germen (see fig. 4.) superior, roundish, with 5 furrows. Style (see fig. 4.) awl-shaped, upright, longer than the stamens, permanent (see fig. 5). Stigmas (see fig. 4.) 5, oblong, reflexed. Fruit beaked, separating into 5, 1-seeded capsules (see fig. 5.), each with a long awn, bearded on the inside, and at length spirally twisted, adhering by their points to the top of the style (see figs. 5 & 6). Seeds vertical, egg-oblong.

The single style; and the beaked fruit, of 5 aggregate capsules, each tipped with a spiral awn, bearded on the inside; will distinguish

this from other genera in the same class and order.

Three species British.

ERO'DIUM MOSCHA'TUM. Musky Heron's-bill. Musky Stork's-bill. Muscovy. Moschata. Pick-needle.

SPEC. CHAR. Stems procumbent, hairy. Leaves pinnate; leaflets nearly sessile, elliptical, or egg-shaped, unequally cut. Peduncles many-flowered. Perfect Stamens toothed at the base.

Eugl, Bot. t. 902.—L'Heritier in Ait, Hort. Kew. (1st ed.) v. ii., p. 414.—Willd. Sp. Pl. v. lii, pt. r. p. 631.—Sm. Fl. Brit. v. ii p. 728.; Eugl, Fl. v. iii. p. 230.—With. (7th ed.) v. iii. p. 798.—Gray's Nat. Arr. v. ii. p. 625.—Lindl. Syn. p. 58.—Hook. Brit. Fl. p. 310.—Macr. Man. Brit. Bot. p. 43.—Davies' Welsh Bot. p. 66.—Purt. Midl. Fl. v. i. p. 316.—Grev. Fl. Edin. p. 148.—Fl. Devon. pp. 115 & 180.—Don's Gen. Syst. of Gard. and Bot. v. 1. p. 722.—Walker's Fl. of Oxf. p. 198.—Bab. Fl. Bath., Supp. p. 72.—Irv. Lond. Fl. p. 173.—Mack. Catal. Pl. Irel. p. 63; Fl. Hibern. p. 57.—Gerdnium moschatum, Johnson's Gerarde, p. 941.—Ray's Syn. p. 358.—Linn. Sp. Pl. p. 951.—Jacq. Hort. Vind. v. i. t. 55.—Deer. Catal. Stirp. Nott. p. 90.—Huds. Fl. Angl. (2nd ed.) p. 300.—With. (5th ed.) v iii. p. 751.

LOCALITIES.—In mountainous pastures; rare.—Oxfordshire; I have observed it once or twice about Oxford, but in places where it had, no doubt, escaped from gardens: W. B.—Beds. On Ampthill Warren.—Bucks; On the rubbish near Salt-Hill.—Cheshire; In the lane between Stockport and New

Fig. 1. Corolla.—Fig. 2. Stamens and Pistil.—Fig. 3. Two abortive, and one perfect Stamen, and Gland.—Fig. 4. Germens, Styles, and Stigmas.—Fig. 5. The Calyx; and the 5 Carpels separating from the beak.—Fig. 6. A separate Carpel.

^{*} From erodios, Gr. a heron; the fruit resembling the beak of that bird.

1 Sec folio 106, note +.

Bridge.—Cornwall; Near Penzance; and at Portluney and Carhays.—Cumberland; Hedge-bank at Mr. Yates's, Skirwith, Kirkland.—Derbyshire; Alfreton.—Devonshire; Along the Southern coast. Dawlish; Teignmouth; and Torquay. Bank under a hedge near Upcott; also near Plymouth; and Countless Wear Bridge, near Exeter.—Essex; At Dedham. Between Bristol and St. Vincent's Rocks.—Kent; South Kent, probably not native. On Bromley Common.—Lancashire; Dry places in the county.—Norfolk; In the hedge of a field by a foot-path into Cromer.—Notts; Here and there on banks.—Shropshire; High road between Shelton and Montford Bridge.—Somersetshire; Way-side at Chedder; near Yeovil; Farringdon; and Kings-down.—Staffordshire; Grounds about Dudley Castle.—Suffolk; Bradwell Common, doubtful if wild.—Surrey; Near Battersea. On Streatham Common; at Bagshot; in the lanes and fields near Windlesham Church; and ahout Barnes.—Sussex; On the rocks, Hastings; and West end of Pulborough.—Warwickshire; At Cookhill, on the Ridgeway.—Westmoreland; Everywhere in dry pastures of this county.—Worcestershire; Near Stourbridge.—Yorksh. In Craven; Hornsca; Thorp Arch; and near Scarborough.—WA LES. Anglesea; Above the beach between Friars and Friars' Beach; and on the side of the post-road between the second and third milestone from Holyhead.—Pembroke.—SCOT-LAND. Haddingtonshire; Near Prestonpans.—IRELAND. Simmond's Court, near Donnybrook; rocks at Carlingford Castle; near Monkstown Church; and about Cork.—For authorities, see B. G.; and N. B. G.

Annual.—Flowers from May to September.

Root tapering, fibrous, whitish. Stem prostrate, sometimes more than 2 feet long, round, and clothed, more or less, with short, white hairs. Leaves pinnate, on longish petioles; leaflets nearly sessile, opposite and alternate, elliptical, or oblong egg-shaped, unequally serrated and cut, slightly hairy, the terminal one 3-lobed. Stipulas rather large, broadly egg-shaped, very thin and membranous. Peduncles 2 or 3 inches long, bearing an umbel of from 4 to 10 flowers, on short pedicels, which are clothed with glandular hairs, and accompanied at their base with egg-shaped, membranous bracteas. Calyx permanent, clothed with short, white, glandular hairs. Petals rose-coloured, not spotted, all nearly equal. Abortive filaments very broad; anther bearing ones with a tooth on each side near the base (fig. 3). Glands 5, green, on the outside of the anther bearing filaments. Capsules single-seeded, clothed with strong, yellow hairs.

The whole plant has a powerful musky smell, in which, and in the larger, paler, and much less deeply-cut leaflets, it differs from Erodium cicutarium, a species

to which it is nearly akin,

For a very interesting account of the heautiful contrivance which nature has provided for the dispersion and protection of the seeds of these plants, and some others of the same order, see WITHERING'S Botanical Arrangement of British Plants, and JOHNSTON'S Flora of Berwick-upon-Tweed, v. i. p. 150.

The Natural Order Gerania Cer consists of herbs or shrubs, without tendrils. Their leaves are opposite at the joints, or alternate, and then opposite the peduncle. They have a calyx of 5 permanent sepals, which are imbricated in the bud. Their corolla consists of 5 petals. Their stamens are generally monadelphous, and twice as many as there are petals, some of them occasionally abortive. The ovary is 5-lobed, and terminated by a long thick beak (torus or gynobase), and 5 stigmas. The capsules (carpels) are 5, each 1-celled, and 1-seeded, eventually separating from the base of the beak, together with a long elastic awn (the style). The seed is solitary, without albumen; with a curved embryo; and foliaceous, convolute, and plaited cotyledons.





Melilotus of fice nalis. Common Melie Ru/sell, Del. Pub d by W. Barron, Boranic Garden, Of ord 1840. M.

MELILOTUS*.

Linnean Class and Order. DIADE'LPHIAT, DECA'NDRIA.

Natural Order. Legumino'sæ, Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Macgilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259.—Loud. Hort. Brit. p. 509.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—Legumina'ceæ, Loudon's Arb. Brit. p. 561.—Papiliona'ceæ‡, Linn.—Rosales; sect. Cicerinæ; subsect. Lotianæ; type, Lotaceæ; subtype, Lotidæ; Burn. Outl. of Bot. pp. 614, 638, 642, & 644.

GEN. CHAR. Calyx (fig. 1, a.) inferior, tubular, 5-toothed, permanent. Corolla (fig. 1, b.) papilionaceous, of 4 distinct, deciduous petals; standard (fig. 2.) reflexed; wings (fig. 3.) oblong, shorter than the standard; keel of 1 petal, rather shorter than the wings. Filaments (fig. 4.) 10, 9 in one split compressed tube; the tenth hair-like, and distinct. Anthers roundish. Germen (fig. 5.) eggoblong. Style awl-shaped, curved upwards. Stigma simple, smooth. Legume (figs. 5 & 6.) longer than the calyx, coriaceous, 1- or few-seeded, hardly dehiscent, of various forms. Seeds roundish, smooth.

Distinguished from other genera, with diadelphous stamens, in the same class and order, by the 1-celled, 1- or few-seeded, indehiscent legume, longer than the calyx; the awl-shaped style with a simple, smooth stigma; the distinct petals; and the racemose inflorescence.

It differs from the genus *Trifolium* in the flowers being produced in a loose raceme, not in a head or close spike; and in the *legume* being longer than the calyx, not shorter. See folio 283.

Two species British.

MELILO"TUS OFFICINA'LIS. Officinal Melilot. Common Yellow Melilot. Plaster Clover. King's Clover. Hart's Clover.

SPEC. CHAR. Stem upright. Racemes loose. Corolla more than twice as long as the calyx. Petals nearly equal in length. Legumes 2-seeded, egg-shaped, wrinkled.

Pers, Syn. Pl. v. ii. p. 348.—Gray's Nat. Arr. v. ii. p. 603.—Lindl. Syn. p. 79.—Hook. Brit. Fl. p. 327.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 177.—Macr. Man. Brit. Bot. p. 53.—Winch's Fl. of Northumberl. and Durh. p. 49.—Lindl. Fl. Med. p. 240.—Bab. Fl. Bath. p. 12.—Dick. Fl. Abred. p. 48.—Irv. Lond. Fl. p. 178.—Luxf. Reig. Fl. p. 64.—Mack. Fl. Hibern. p. 76.—Melilôtus vulgáris. Ray's Syn. p. 331.—Deer. Cat. Stirp. Nott. p. 142.—Warn. Pl. Woodf. p. 97.—Jacob's Pl. Faversh. p. 67.—Trifôlium officinále, Engl. Bot. t. 1340.—Sm. Fl. Brit. v. ii. p. 781.—Willd. Sp. Pl. v. iii. pt. 11. p. 1355.—Sm. Engl. Fl. v. iii. p. 297.—With. (7th ed.) v. iii. p. 852.—Davies' Welsh Bot. p. 70.—Relh. Fl. Cant. (3rd ed.) p. 298.—Hook. Fl. Scot. p. 217.—Grev. Fl. Edin. p. 159.—Fl. Devon. pp. 123 & 176.—Johnst. Fl. Berw. v. i. p. 162.—Walker's Fl. of Oxf. p. 212.—Perry's Pl. Varvic. Sel. p. 62.—Mack. Catal. Pl. Irel. p. 67.—Trifôlium Melilôtus

Fig. 1. A separate Flower; a. Calyx; b. Corolla.—Fig. 2. Standard.—Fig. 3. One of the Wings.—Fig. 4. Stamens.—Fig. 5. Unripe Legume.—Pig. 6. Ripe ditto.—Fig. 7. A Seed.

Fig. 7. A Seed.

* From mel, honey; and lotus, the genus so called. 1looker. See t. 249.

† See fol. 77, note †.

‡ See fol. 117, note ‡.

officindlis, Liun. Sp. Pl. p. 1078.—Mart. Fl. Rust. t. 72.—Huds. Fl. Angl. (2nd ed.) p. 323.—Lightf. Fl. Scot. v. i. p. 402.—Sibth. Fl. Oxou. p. 227.—Abbot's Fl. Bedf. p. 161.—Purt. Midl. Fl. v. i. p. 346.—Sincl. Hort. Gram. Woburn. (3rd edit.) p. 393.

LOCALITIES.—In thickets, hedges, way-sides, and borders of fields; sometimes among corn.

Annual.-Flowers in June and July.

Root tapering, strong, and somewhat woody. Stem 2 or 3 feet high, upright, branched, leafy, angular, furrowed, smooth; branches much spreading. Leaves alternate, petiolated, smooth, of 3, inversely egg-shaped, or oblong-wedge-shaped, sharply serrated, dark green leaflets; the partial stalk of the middle one rather the longest. Stipulas spear-shaped, the upper ones entire; the lower sometimes with 2 or 3 awl-shaped teeth. Racemes (clusters) two inches or more in length, on long, axillary peduncles. Flowers numerous, on short, slender pedicels, all drooping to one side. Calyx about one-third the length of the corolla, divided about half way down into 5, nearly equal, pointed teeth. Corolla yellow; standard (vexillum) striated with brown, keeled, a little longer than the other petals, notched, and but slightly reflexed; wings as long as the keel. Style thread-shaped. Stigma bluntish. Legume (pod) pendulous, 2-seeded, elliptical, transversely wrinkled, somewhat hairy, at length blackish, and rather gibbous. Seeds unequally heart-shaped.

The whole plant has a peculiar scent, which becomes more fragrant in a dry state, then having some resemblance to that of new hay, or that of Anthoxanthum odoratum, t. 99. The flowers are sweet-scented; a water distilled from them possesses little odour in itself, but improves the flavour of other substances. The flowers and seeds are said to be the chief ingredients in flavouring the Gruyère cheese. This cheese, Mr. Don says, no doubt owes its excellence to the mixture of herbs in the mountain pasturage, which surrounds the valley of Gruyère in Switzerland, but more particularly to the flowers and seeds of this plant, which are bruised and mixed with the curd before it is pressed. In medicine the plant was esteemed emollient and digestive, and was used in fomentations and cataplasms, particularly in blister plasters, but it is now laid aside, as being more acrid and irritating than emollient. Notwithstanding the strong smell of the plant, and its bitter acrid taste, it does not appear to be disagreeable to any kind of cattle; and horses are said to be extremely fond of it; hence it is called by some Italian writers Trifolium caballinum. Professor MARTYN observes, that there cannot be a worse weed among hread-corn, for a few of the seeds, ground with it, spoil the flour, by communicating the peculiarly strong taste of the plant, so as to render it unfit for making hread.

Dr. LINDLEY states, in his excellent "Flora Medica," p. 240, that the odoriferous principle of this plant is very fugacious; and was asserted by VOGEL to be benzoic acid, but that according to GUIBOURT, and others, it is Commarine, the aromatic principle of the Tonka Bean.

Melilot does not appear to have been cultivated in England; but, in a wild state, it occurs, more or less common, in most counties. I have observed it in the following places near Oxford, namely, Marston-lane, in 1827; between South Hinksey and Childswell Farm; and in Cowley-field, in 1831; abundant in a copse just beyond Botley-Pound going to Ensham; and in hedges and on the borders of fields between Cassington and Church Handborough, July 1, 1833. Dr. Sietnorr records it as growing in the lane going to Binsey. Mr. Sinclair says, that in very exposed situations it attains only to a small size, while in such as are much sheltered, he has found it exceed six feet in height. Dr. Jounston remarks, that in the neighbourhood of Berwick-upon-Tweed, the flowers are most frequently of a greenish-white colour, and smaller than usual.

The white-flowered variety mentioned by Withering, is the Melilotus leucantha of Hooker's British Flora.

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Sedum acre. Biting Stone rofe. 4 Matter Botonic Galden Orford 18 Matter Botonic Galden Orford 18 Matter St.

SE'DUM*.

Linnean Class and Order. DECA'NDRIAT, PENTAGY'NIA.

Natural Order. CRASSULA'CEÆ, De Cand.—Lindl. Syn. p. 63.; Introd. to Nat. Syst. of Bot. p. 161.—Rich. by Macgilliv. p. 514.— Loud. Hort. Brit. p. 516 .- Don's Gen. Syst. of Gard. and Bot. v. iii. p. 97.—Mack. Fl. Hibern. p. 59.—CRAISSULÆ, Juss. Dict. des. Sc. Nat. v. xi. p. 369.—Succule'NTA, Linn.—Vent. Tabl. v. iii. p. 271.—SEMPERVIVÆ, Juss. Gen. Pl. p. 307.—Sm. Gram. of Bot. p. 162.—Rosales; scct. Crassulinæ; type, Crassulaceæ; Burn. Outl. of Bot. v. ii. pp. 614, 730, & 735.

GEN. CHAR. Calyx (fig. 1.) inferior, of 1 sepal, in 5 deep, eggshaped, pointed, usually turgid, permanent segments, often resembling the leaves. Corolla (see fig. 2.) of 5 spear-shaped, pointed, flat, generally spreading petals. Nectary (see fig. 5, a.) a minute scale, at the base of each germen, on the outer side. Filaments (see fig. 2.) 10, awl-shaped, spreading. Anthers roundish. Germens (fig. 3.) 5, oblong, each tapering into a short spreading style. Stigmas bluntish. Capsules (fig. 4.) 5, compressed, pointed, spreading, notched towards the base, bursting along the inner margin. Seeds (fig. 6.) numerous, minute, arranged along the inner margin, at each side.

The deeply 5-cleft calyx; the corolla of 5 petals; and the 5 capsules, each with a nectariferous scale at its base; will distinguish this from other genera in the same class and order.

Eleven species British.

SE'DUM ACRE. Acrid Stonecrop. Biting Stonecrop. Wallpepper. Stone-hot. Pricket. Mouse-tail. Country Pepper. Jack of the Buttery.

Spec. Char. Leaves alternate, nearly egg-shaped, uprightish, smooth, gibbous, fleshy, spurred at the base. Cymes trifid, smooth, leafy. Flowers of a golden-yellow, sessile along the branches of the cyme.

Engl. Bot. t. 839 .- Curt. Fl. Lond. t. -Woodv. Med. Bot. t. 231 .- Linn. Sp. Engl. Bot. 839.—Chr. F. Lond. C.—Woody, Med. Bot. 1. 231.—Ellin. 8p. Pl. p. 619.—Huds. Fl. Angl. (2nd edit.) p. 196. var. a.—Willd. Sp. P. vii. p. t. t. p. 767.—Sm. Fl. Brit. v. ii. p. 487.; Engl. Fl. v. ii. p. 317.—With. (7th edit.) p. 558.—Gray's Nat. Arr. v. ii. p. 541.—Lindl. Syn. p. 64.—Hook. Brit. Fl. p. 210.—Macr. Man. Brit. Bot. p. 88.—Lightf. Fl. Scot. v. i. p. 235.—Sibth. Fl. Oxon. p. 144.—Abb. Fl. Bedf. p. 99.—Thornt. Fam. Herb. p. 462, with a figure.—Davies' Welsh Bot, p. 43.—Purt. Midl. Fl. v. i. p. 218.—Relh. Fl. Cant. (3rd ed.) p. 181.—Hook, Fl. Scot. p. 140.—Grev. Fl. Edin. p. 101.—Fl. Dev. pp. 76 & 185.—Johnst. Fl. of Berwick, v. i. p. 99.—Winch's Fl. of Northumbl. and Durh. p. 29.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 119.—Walker's Fl. of Oxf. p. 126.—Lindl. Fl. Med. p. 276.—Perry's Pl. Varvic. Sclectæ, p. 41.—Bab. Fl. Bath. p. 18.—Dick. Fl. Abred. p. 38.—Irv. Lond. Fl. p. 171.—Luxf. Reig. Fl. p. 40.—Cow. Fl. Guide, p. 47.—Mack. Catal. Pl. Irel. p. 44.; Fl. Hibern. p. 61.—Sedum parvum acre flore luteo, Ray's Syn. p. 270.—Vermicularis, sive Illecebra minor acris, Johnson's Gerade, p. 517.

Localities .- On walls, roofs, rocks, and dry sandy ground; common.

Fig. 6. A Seed.

* From sedeo, L. to sit; from the humble growth of these plants on their native + See folio 37, note +. rocks. Hooker.

Fig. 1. Calyx.—Fig. 2. A Flower.—Fig. 3. Calyx, Pistils, and Nectaries.—Fig. 4. Capsules.—Fig. 5. A separate Germen, with the nectary (a.) at its base.—

Perennial.—Flowers in June and July.

Root fibrous, subdivided. Stems numerous, rather creeping at the base, entangled, branched; the branches 2 or 3 inches high. upright, cylindrical, leafy. Leaves sessile, dark green, closely imbricated on the barren branches; scattered on the flowering ones; blunt, convex at the back, flattened above, nearly egg-shaped, fleshy, with a spur at the base. Flowers of a golden-yellow, sessile, more or less numerous, growing along the branches of the cyme, which is generally trifid. Petals spear-shaped, pointed, twice as long as the calyx. Capsules membranous.

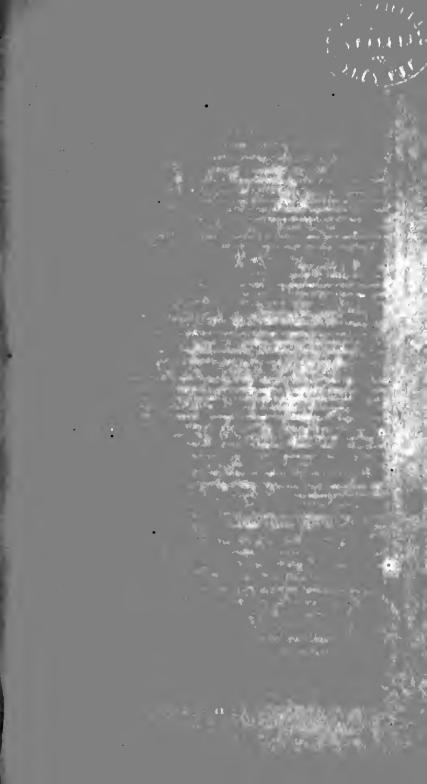
Whole plant smooth, succulent, and tender, of a grass-green, forming lax wide spreading tufts, and when extending itself "over the roofs of cottages, or the tops of walls, its golden blossoms," as Dr. Withering observes, "exhibit a gay appearance; and mingled occasionally with the crimson or pearly constellations of its congeners, arrest the attention even of the superficial observer; while to the more scrutinizing eye of the scientific, each individual flower displays a skill, beauty, and contrivance, truly admirable." It is very acrid; and chewed in the mouth has a hot biting taste, whence, and from the common place of its growth, it has a hot bring taste, whence, and non the common place of its growth, it has the name of Wall Pepper. Applied externally it blisters; taken inwardly it excites vomiting. In scorbutic cases, and quartan agues, it is an excellent medicine under proper management. For the former, a handful of the herb is directed to be boiled in eight pints of beer till reduced to four, of which three or four ounces are to be taken every other morning. Milk has been found to answer this purpose better than beer. Not only ulcers simply scorbutic, but those of a scrofulous or even cancerous tendency, have been cured by the use of

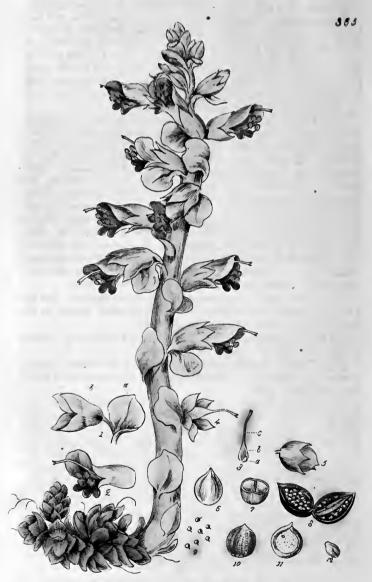
It continues to grow when hung up by the root, which has been considered as a proof that it receives its nourishment principally from the air; but it is remarked by Dr. WITHERING, that though the life of the plant be thus retained for some weeks, yet it is at the expence of the juices which its succulent leaves had previously imbibed. At the end of three weeks, a plant, suspended by Mr. Gough of Kendal, before a window with a northern aspect, had lost about half its weight, though it had put out some fine fibres from the root, and had yet life enough to enable it to turn to the light, after having been purposely turned from it. After being kept in water for 24 hours, it regained more than half of what it had lost. Mr. Gough therefore justly considers the succulent leaves as re-servoirs, which support the plant in dry weather, and are again replenished in rainy seasons, but does not admit that such plants attract nourishment from the air more than others. It must be allowed, however, that they subsist much upon the humidity of the atmosphere, since their succulent stems and leaves cannot derive much nutriment from the arid soil in which they generally grow.—Goats eat this plant; cows, horses, sheep, and swine refuse it. See MARTYN'S Mill. Gard. Dict.; and Withering's Bot. Arr.

A diminutive variety of this plant, (var. β. diminutum of HAWORTH,) much smaller than the species, hardly an inch high, with a creeping stem, a native of the higher Alps of Province, has been found on Swaffan Heath, Norfolk. Don.

The Natural Order CRASSULA'CEE, to which the present genus belongs, is composed of herbs or shrubs, with fleshy leaves, and no stipulas. Their calux consists of from 3 to 20 sepals, which are more or less united at the base. Their corolla of from 3 to 20 petals, inserted (as well as the stamens) at the base of the calyx. Their stamens are equal in number with the petals, or twice as many, and then they are frequently alternately shorter and longer. Their nectaries (glands) are 5, or obsolete. The follicles (capsules) are as many as the petals, 1-celled, tapering into stigmas. The seeds are attached to the margins of the suture, in two rows; the embryo is straight in the axis of the albumen, with the radicle pointing to the hilum.

The other British genera belonging to this order, are—1. Tillaa. 2. Cotyledon, t. 279. 3. Sempervivum. 4. Rhodiola.





Lathiren sequamaria. Greater Tooth-wort. 4

LATHRÆ'A*.

Linnean Class and Order. DIDYNA'MIA[†], ANGIOSPE'RMIA[‡]. Natural Order. OROBA'NCHEÆ, Juss.—Lindl. Syn. p. 193.; Introd. to Nat. Syst. of Bot. p. 227.—Rich. by Macgilliv. p. 433.—Loud. Hort. Brit. p. 529.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 627.—Mack. Fl. Hibern. p. 205.—Hook. Brit. Fl. (4th edit.) p. 414.—Akin to Pediculares, Juss. Gen. Pl. pp. 99 & 101.—Sm. Gram. of Bot. p. 96.—Syringales; subord. Primulosæ; sect. Menthinæ; type, Orobanchaceæ; Burn. Outl. of Bot. v. ii.

pp. 900, 958, & 960.—Personate, Linn.

GEN. CHAR. Calyx (fig. 1, b.) inferior, of 1 sepal, bell-shaped, in 4 deep, upright, nearly equal segments, permanent. Corolla (fig. 2.) of 1 petal, tubular, 2-lipped; the upper lip concave, cloven or entire; the lower lip smaller, spreading, blunt, 3-cleft. Nectary (see fig. 3, a.) a depressed gland at the base of the germen. Filaments 4, didynamous, awl-shaped, shorter than the corolla, and concealed by its upper lip. Anthers (see fig. 2.) converging, blunt, their lobes pointed beneath. Germen (fig. 3, b.) roundish, or eggshaped, compressed. Style (fig. 3, c.) cylindrical, as long or longer than the stannens. Stigma blunt, notched, bent downwards. Capsule (figs. 5 & 6.) roundish, blunt, with a point, of one cell, and two membranous elastic valves (fig. 8.), invested with the enlarged inflated calyx. Placentas (receptacles) parietal, two to each valve (see fig. 8). Seeds (see figs. 8 & 9.) few, globose, rough.

The 4-cleft calyx; the gland at the base of the germen; and the 1-celled capsule; will distinguish this from other genera in the

same class and order.—One species British.

LATHRÆ'A SQUAMA'RIA. Scaly-rooted Toothwort §. Greater

Toothwort. Clown's Lungwort.

SPEC. CHAR. Flowering branches upright, quite simple. Flowers somewhat pendulous, in 1-sided, spike-like racemes; lower lip of the corolla in 3 lobes.

Engl. Bot. t. 50.—Fl. Dan. t. 136.—Linn. Sp. Pl. p. 844.—Huds. Fl. Angl. (2nd edit.) p. 266.—Willd. Sp. Pl. v. iii. pt. 1. p. 201.—Sm. Fl. Brit. v. ii. p. 654.; Engl. Fl. v. iii. p. 127.—With. (7th ed.) v. iii. p. 731.—Lindl. Syn. p. 194.—Hook. Brit. Fl. p. 285.—Macr. Man. Brit. Bot. p. 175.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 634.—Light. Fl. Scot. v. i. p. 326.—Sibth. Fl. Oxon. p. 191.—Abb. Fl. Bedf. p. 136.—Purt. Midl. Fl. v. i. p. 292.; and v. iii. p. 366.—Hook. Fl. Seot. p. 187.—Grev. Fl. Edin. p. 135.—Rev. G. E. Smith's Pl. S. Kent. p. 33. t. 3.—Johnst. Fl. Berw. v. ii. p. 284. t. v111.—Wineh's Fl. of Northumbl. and Durh. p. 41.—Walker's Fl. of Oxf. p. 175.—Lian. Soc. Tr. v. xvi. p. 399. t. 22 & 23.—Bab. Fl. Bath. p. 35.—Irv. Lond. Fl. p. 127.—Luxf. Reig. Fl. p. 54.—Mack. Catal. Pl. of Irel. p. 58.; Fl. Hibern. p. 207.—Lathræa simplex, Gray's Nat. Arr. v. ii.

Fig. 1. a. A Bractea; b. Calyx.—Fig. 2. Corolla.—Fig. 3. a. Gland; b Germen; c. Style.—Fig. 4. Calyx, &c.—Fig. 5. Capsule.—Fig. 6. Same divested of Calyx.—Fig. 7. Transverse section of ditto.—Fig. 8. Capsule opened vertically, showing the 2 valves, the placentas, and the sceds.—Fig. 9. Seeds.—Fig. 10. A Seed magnified.—Fig. 11. Vertical section of the same, showing the Albumen and the Embryo, ditto.—Fig. 12. The Embryo separated, ditto.

^{*} From lathraios, Gr. hid, or concealed; the plant being much concealed by the earth or dead leaves. HOOKEE.

[†] See folio 31, note t. † See folio 72, note t. † From the resemblance of the scaly roots to the human fore-teeth, and hence it was fancied formerly to be good for the tooth-ache.

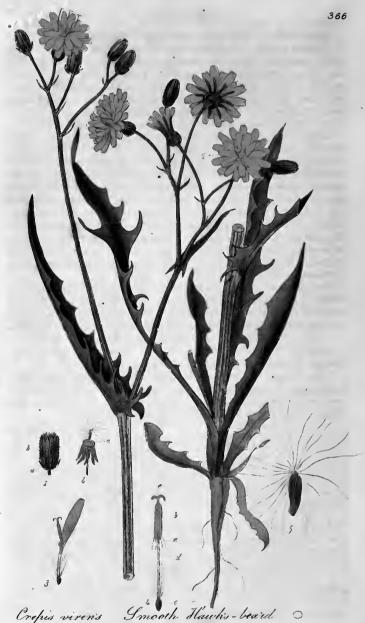
p. 316.—Anblatum Cordi sive Aphyllon, Ray's Syn. p. *288.—Jacob's Pl. Fav. p. 6.—Dentaria major Matthioli, Johns. Ger. 1585.—Blackst. Sp. Bot. p. 17.

Localities.—In woods and coppices, apparently parasitical on the roots of Hazels, Elms, Beech, and other trees in dry shady places, generally almost covered by the fallen leaves.—Oxfordshire; Woodstock Park; and in woods near Ashford Mills: Dr. Sibthorn.—Beds; Iledges at Whipbande, and Studham: Rev. C. Abbit.—Bucks; On a hedge-bank near the tumpike-gate at Oak Ends, near Chalfont St. Peter's; April 18, 1835: Mr. J. Siben.—Cheshire; In Harnicroft Wood, near Chadkirk: B. G.—Cumberland; In a field of Mr. Repr's Hole house Baggray; and near Abshable in the profich of Winter. REDE'S Hole-house, Baggray; and near Akebank, in the parish of Wigton: B. G.—Derbysh. Abundant in the Dell of Calke Abbey Park: Rev. A. BLOXAM. Woods behind Saxton's Hotel, Matlock; and woods on the E. side of the river: Mr. O. Jewitt. Pleasly Park: B. G.—In a very thick part of the Chace, near West Lodge, only two plants found; and near Chettle: B. G.—Durham; In Shipley; Eglestone; Cocken; and Lumley Woods; near Pierce Bridge; and in Irehope Dene, Weardale: N. B. G. In a wood near Gainford: B. G.—Gloucestersh. Leigh Wood, near Bristnl: With. Arr.—Dowdeswell Wood near Cheltenham: Rev. E. F. Witts.—Hants; Longwood: B. G. In the Church-litten-coppiee under some hazels near the foot-bridge, in Trimming's garden hedge; and on the dry wall opposite Grange-yard: Hist. Selb.—Kent; In a hazel copse below Postling Wood; copse above Hythe; on a ditch-bank at Bredgate near Sittingbourne; in the wood S. from Chiselhurst bog, the end towards the bng on the left hand; in the woods about Maidstone, plentifully; also very abundant in cottage gardens at Chelsfield, a village between Farnborough and Farningham: N. B. G.—Lancash. In Deepdale Wood; and in Grisedale, and Farningham: N. B. G.—Lancash. In Deepdale Wood; and in Grisedale, within the Liberties of Yealand: B. G. On a bank under Hazels near Coniston: Miss Susan Beevir; see folio 188, a.—Lincolnsh. At Exton, near Stamford: N. B. G.—Middlesex; Sandy-lane, leading from Harefield town to the river: B. G.—Northumberland; Hulne Abbey Woods; in Twizell Woods; at Breakbank near Alnwick; and in the wood bottom at the W. end of the Rectory Dean at Simonburn: N. B. G.—Notts; Newstead; Epperstone; Bulwell; and Harlow Wond, near Mansfield: N. B. G. By Hord's Park; Bethal Edge; Colebrook Dale; and shrubbery at Bitterley Court, Ludlow: N. B. G.—Somersetsh. In Smallembe and Walley Woods: by the hedge on the left hand side of the brook Dale; and shrubbery at Bitterley Court, Ludlow: N. B. G.—Somersetsh. In Smallcombe and Wolley Woods; by the hedge on the left hand side of the field by the farm-house on Claverton Down; at Inglishcombe; in Prior Park Grounds; Chapel Wood, Lansdown; and in the wood at Midford Castle: N. B. G.—Surrey; In a private garden near Mickleham; 1823: Mr. W. Panplin, jun. Coulsdon: N. B. G. Fields between Chantry Downs and Salford Turnpike, near Guildford: Fl. Metr. On Chapel Farm, right hand of Westhumble Lane near Dorking; and at Chipstead: Reig. Fl.—Sussex; Biggen-holt Wond near Washington: N. B. G.—Westmoreland; In thickets below Conzick Scar near Kendal; and Cunswick Wood: N. B. G.—Wilts; Woods at Clarendon: B. G. Near Great Bedwyn: W. Bartlett, Esq.—Worcestersh. At the mots of the White Poplar Tree, near Bridgestone Mill, Alfrick; at Great Malvern, under an Elm by the road-side near the turnpike; near Abberly; at the base of the N. hill, Malvern, on the roots of Holly; and in a thick wood on a conglomerate rock near the Teme, on the root of Maple: N. B. G.—Yorkshire; Round Howe, and woods W. of Richmond; Limestone tract, near Leeds; Newburgh Woods; on the further E. rocks in the middle fissures above Malham Tarn; near Ripon; Pierce Bridge; woods near Kirkham; Newburgh, Wass, and Byland Woods, near Coxwold; Studley and Mackershaw Woods; Hackfall; Plumpton; and Rokeby, near Greta Bridge: N. B. G.
—In WALES, SCOTLAND, and IRELAND; but not common. Perennial.—Flowers in April.

Root (or more properly, perhaps, subteraneous stem) articulated, branched, and covered with imbricated fleshy scales. Flowering stems thick, succulent, from 4 to 6 inches, or more, high, tapering upwards, purplish, downy, naked, except perhaps furnished with 1 or 2 egg-shaped scales. Flowers in a sort of racemose spike, all leaning to one side, in a double or treble row, each on a short pedicel, with a large, roundish bractea at its base. Calyx hairy, whitish. Corolla drooping, pale purple, or flesh-coloured, upper lip entire, or sometimes more or less cloven; lower lip 3-lobed. Anthers large, hairy. Style protuding. Stigma dilated. Germen smooth. Capsule large, thin, crowned with the withered style, and invested with the permanent calyx.

MHAHAHA 11/2 1/16 VISE

Total



Crepis virens Smooth Huwhis - Con Cheng that & Se Public by W. Earlin Bornic Control Colors 1840

CRE'PIS*.

Linn. Class & Order. Syngene'sia†, Polyga'mia, Æqualis‡.

Natural Order. Compo'sitæ§, (Linn.), tribe, Cichora'ceæ,
Lindl. Syn. pp. 140 & 156; Introd. to Nat. Syst. of Bot. pp. 197
and 201.—Loud. Hort. Brit. pp. 520 & 521—Mack. Fl. Hibern.
pp. 142 & 159.—Hook. Brit. Fl. (4th ed.) p. 410.—Cichora'ceæ,
Juss. Gen. Pl. p. 168.—Sm. Gr. of Bot. p. 120.—Synanthe'reæ,
Rich. by Macgilliv. p. 454.—Syringales; subord. Asterosæ;
type, Cichoraceæ; Burn. Outl. of Bot. pp. 900, 901, & 935.

GEN. CHAR. Involucrum (common calyx) (fig. 1.) double; outermost (fig. 1, a.) very short, lax, tumid, deciduous; inner (fig. 1, b.) egg-shaped, simple, furrowed, permanent, of several strap-shaped converging scales. Corolla (fig. 2.) compound, of numerous, imbricated, uniform, perfect, strap-shaped, abrupt, 5-toothed florets (fig. 3). Filaments (see fig. 4, a.) 5, hair-like, very short. Anthers (fig. 4, b.) in a cylindrical tube. Germen (fig. 4, c.) inversely eggoblong. Style (fig. 4, d.) thread-shaped, slightly prominent. Stigmas (fig. 4, e.) 2, spreading. Seed-vessel none, the inner calyx converging, hardened. Seed (see figs. 5 & 6.) narrower upwards, striated. Pappus (see fig. 5.) hairy, copious, soft, mostly white, deciduous. Receptacle (see fig. 6, a.) naked.

Distinguished from other genera with uniform strap-shaped florets in the same class and order, by the *involucrum* with scales at its base; the pointed, striated *seed*, narrower upwards; the hairy, copious, mostly white, deciduous *pappus*; and the naked *receptacle*.

Five species British. See HOOK. Brit. Fl. (4th ed.) p. 291. CRE'PIS VI'RENS. Green Crepis. Smooth Hawk's-beard.

Succory Hawkweed. Yellow Succory.

SPEC. CHAR. Leaves smooth, runcinate; the upper ones straparrow-shaped, stem-clasping, their margins flat. Stem smooth, panicle somewhat corymbose. Seed oblong, shorter than the

pappus, which latter is almost as long as the involucrum.

Crepis virens, Linn.—Babington in Tr. Linn, Soc. v. xvii. p. 453.—Linn. Sp. Pl. 1134.—De Cand. Fl. Fr. vol. v. p. 447.; Bot. Gal. v.i. p. 299.—Hook. Brit. Fl. (4th edit.) p. 291.—Mack. Fl. Hibern. p. 161.—Crepis tectorum, Iluds. Fl. Angl. (1st edit.) p. 291.—Engl. Bot. t. 1111.—Curt. Fl. Lond. t. 327.—Sm. Fl. Brit. v. ii. p. 837.; Engl. Fl. v. iii. p. 372.—With. (7th ed.) v. iii. p. 900.—Gray's Nat. Arr. v. ii. p. 425.—Lindl. Syn. p. 158.—Hook. Brit. Fl. p. 347.—Macr. Man. Brit. Bot. p. 143.—Lightf. Fl. Scot. v. i. p. 440.—Sibth. Fl. Oxon. p. 240.—Abb. Fl. Bedf. p. 172.—Davies' Welsh Bot. p. 75.—Purt. Midl. Fl. v. ii. p. 375.—Relh. Fl. Cant. (3rd edit.) p. 323.—Hook. Fl. Scot. p. 233.—Grev. Fl. Edin. p. 170.—Fl. Devon. pp. 131 & 156.—Johnst. Fl. Berw. v. i. p. 176.—Winch's Fl. of Northumbl. and Durh. p. 51.—Walker's Fl. of Oxf. p. 226.—Bab. Fl. Bath. p. 28.—Irv. Lond. Fl. p. 151.—Luxf. Reig. Fl. p. 68.—Cow. Fl. Guide, p. 28.—Mack. Catal. Pl. of Irl. p. 70.—Crepis polymorpha, Wallr. Sched. Crit. v. i. p. 426.—Hedypnois tectorum, Huds. Fl. Angl. (2nd ed.) p. 341.—Hieracium luteum glabrum sive minus hirsutum, Ray's Syn. p. 165.—Hieracium Lactucæ folio, Dill. in Ray's Syn. p. 164.—Hieracium aphacoides, Johnson's Gerarde, p. 297.

Fig. 1. Involucrum; a outer scales; b inner ditto.—Fig. 2. Corolla.—Fig. 3. A separate Floret.—Fig. 4. Stamens and Pistil; a. Filaments; b. Anthers; c. Germen; d. Style; e. Stigmas.—Fig. 5. A Seed, and Pappus.—Fig. 6. Calyx, Receptacle (a.), and Seed.—Figs. 1, 3, 4, & 5, more or less magnified.

^{*} Crepis, Gr. a slipper or last; but why applied to this plant is not known.

† See folio 91, note †.

\$ See folio 147, note ‡.

\$ See folio 27, a.

LOCALITIES .- In meadows, pastures, and waste ground, also on old walls, roofs, dry banks, and by road-sides, everywhere.

Annual.—Flowers from June to September.

Root tapering, simple, or slightly branched, fibrous, vellowish. and milky like the rest of the plant. Stem from 1 to 2 feet high, or more, upright, branched, furrowed, smooth, or sometimes slightly hairy, purplish, leafy. Leaves smooth, very variable both in size and form; those next the root more or less runcinate, somewhat resembling the leaves of the common Dandelion (t. 163.), sometimes rather pinnatifid; those on the stem slightly runcinate, variously toothed, stem-clasping, and arrowed-shaped at the base; the uppermost smaller, and nearly entire. Flowers small, yellow, sometimes a little purplish on the outside, in a slender, loose, roughish, bracteated, corymbose panicle. Bracteas awl-shaped. Involucrum oval when in the bud, becoming afterwards ventricose, equalling the pappus, more or less downy and glandular, its outer scales adpressed, few, small, and short, withering, but scarcely deciduous. Seed oblong, not attenuated, ribbed, smooth, shorter than the pappus. Receptacle with shallow rough-edged cells.

Mr. Babington, of St. John's College, Cambridge, in a Paper published in the 17th volume of "The Transactions of the Linnean Society of London," p. 451, has clearly shown that this plant is the Crepis virens of LINNEUS, and not the C. tectorum of that author, as has generally been supposed. It is subject to so many variations both in shape and luxuriance, as well as smoothness, as to have occasioned no small confusion among Botanists, some of whom have considered its different varieties as distinct species. The most marked forms of these varieties are well defined by Mr. BABINGTON

in the Paper above mentioned; they are as follow.

" CREPIS VIRENS, Linn.

a. Vera. Leaves lanceolate-runcinate, cauline ones lanceolate, sinuato-dentate, or nearly entire, sagittate; stem erect, branched above. C. virens, Linn. Sp. Pl. p. 1134.—Common Hawkbeard. Pet. Herb. x11. 6.

β. Pinnatifida. β. Pinnatifida. Radical leaves oroamy orace, cauline ones linear-lanceolate, very deeply divided into numerous long linear seg-Radical leaves broadly ovate, blunt, remotely dentate, ments, the uppermost nearly entire, sagittate; stem erect, branched above. С. pinnatifida. Willd. Sp. Pl. v. iii. p. 1604.—Succory Hawkbeard. Рет. Иегь.

γ. Stricta. Wallr. Leaves linear-lanceolate, remotely dentate, cauline ones slightly sagittate; stem erect, branched above. C. stricta. Scop. v. ii. p. 99 .-

Buddle's Hawkbeard. Per. Herb. xII. 5.
δ. Diffusa. Wallr. Leaves remotely dentate, sinuate or runcinate, cauline ones linear, nearly entire, hardly sagittate; stem diffuse, branching at the base. C. tectorum, var. 4. With. Bot. Arr. v. iii. p. 690. [7th cdit. v. iii. p. 901.] C. diffusa, DC. Fl. Fr. v. v. p. 448. Spreng. Syst. v. iii. p. 634. C. virens, Willd. Sp. Pl. v. iii. p. 1604. Pers. Syn. Pl. v. ii. p. 376.—Dandelion Hawkbit, Pet. Herb. xii. 4.?"

Mr. Babington observes, that the above mentioned varieties are so completely connected by intermediate forms, that it is often quite impossible to determine to which of them a particular specimen ought to be referred; but as they have been adopted as species by some Continental authors, he has thought it right to define their most marked forms .- The Crepis tectorum of LINN EUS, which has not yet been found wild in Britain, is described as having the leaves sinuato-pinnatifid, the fruit (seeds) oblong, attenuated, with rough ribs, equalling the pappus; whereas our plant has the fruit smooth, oblong, shorter than the pappus.

THE RESERVE OF THE PERSON NAMED IN THE RESERVE TO SERVE THE PARTY OF THE PARTY Mississippe I'm - 10 ages Married Street, or other party of the last Married World Co., Name of Street, or other Publisher, where the Publisher of Street, or other Publisher, or othe STREET, STREET the bank process process, " and go to the World Conall the same of the same of the same of May oppose up a distribution of the management, provided the second complete particular to CONTRACTOR OF THE PARTY OF THE AND REAL PROPERTY AND ADDRESS OF THE PARTY AND Market Street St the state of the s AND DESCRIPTION OF THE PARTY OF PARTICULAR TO THE PARTY OF THE Butter to the second of the se Mark Street, section of the last of the la the second secon management of the control of the con and to have an extract or the same of the STATE OF THE PARTY the Charles of the control of the great of the control of The Republic Address of the Art of the Party the second secon Service and the MICHAEL ST. MICHAEL ST. All the sit to be a long to the DOM: And the same of th THE RESERVE THE PARTY OF THE PA and the second second March Control of the the state of the s



Erythraca Centaurium. Common Centaury o Martin Borone Cardin Coperd 1860 Martin Borone Cardin Coperd 1860 Martin S

ERYTHRÆ'A*.

Linnean Class and Order. PENTA'NDRIA†, MONOGY'NIA.

Natural Order. Gentia/Neæ, Dr. R. Brown.—Lindl. Syn. p. 177.; Introd. to Nat. Syst. of Bot. p. 215.—Rich. by Macgilliv. p. 444.—Loud. Hort. Brit. p. 526.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 173.—Mack. Fl. Hibern. p. 185.—Hook. Brit. Fl. (4th ed.) p. 413.—Gentia/Næ, Juss. Gen. Pl. p. 141.—Sm. Gram. of Bot. p. 106.—Syringales; subord. Primulosæ; sect. Gentianinæ; type, Gentianaceæ; Burn. Outl. of Bot. v. ii. pp. 900, 958, & 1008.—Rota/ceæ, Linn.

Calyx (fig. 1.) inferior, of 1 sepal, in 5 deep, GEN. CHAR. upright, pointed, awl-shaped segments, sometimes united below by a membranous border, permanent. Corolla (see fig. 2.) of 1 petal, salver-shaped; tube nearly cylindrical, slender; limb short, in 5 deep, egg-shaped or spear-shaped, spreading segments, withering. Filaments (see figs. 2 & 3.) 5, thread-shaped, equal, inserted into the tube, alternate with the segments of the limb, and shorter. Anthers (see fig. 3.) oblong, incumbent, twisting spirally as the pollen ripens. Germen (fig. 4.) elliptic-oblong, or nearly strapshaped, compressed. Style (see fig. 4.) terminal, cylindrical, prominent, on a level with the stamens, straight, and generally upright. Stigmas 2, roundish. Capsule (see fig. 5.) elliptic-oblong, nearly strap-shaped, acute at each end, compressed, imperfectly 2-celled, of 2 valves, with inflexed margins (see fig. 6). Seeds (fig. 7.) numerous, roundish, in 4 rows, placed alternately on the inflexed margins of the valves.

The 5-cleft calyx; the inferior, monopetalous, salver-shaped corolla; the finally spiral anthers; and the imperfectly 2-celled capsule; will distinguish this genus from others in the same class and order.

Four species British.

ERYTHRÆ'A CENTAU'RIUM ‡. Centaury Gentian. Common Centaury. Lesser Centaury.

SPEC. CHAR. Stem 4-angled, nearly simple. Leaves eggoblong, 3-nerved. Panicle forked, corymbose. Calyx half the length of the tube of the corolla; its segments partly combined by a membrane.

Pers. Syp. Plant. v. i. p. 283.—Sm. Engl. Fl. v. i. p. 320.—With. (7th ed.) v. ii. p. 320.—Lindl. Syn. p. 178.—Hook. Brit. Fl. p. 92.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 204.—Macr. Man. Brit. Bot. p. 157.—Hook. Fl. Scot. p. 79.—Grev. Fl. Edin. p. 54.—Fl. Devon. pp. 41 & 152.—Johnst. Fl. Berw. v. i. p. 61.—Winch's Fl. of Northumbl. and Durh. p. 15.—Walker's Fl. of Oxf. p. 64.—Bab. Fl. Bath. p. 31.—Lindl. Fl. Med. p. 521.—1rv. Lond. Fl. p. 140.—Luxf. Reig. Fl.

Fig. 1. Calyx.—Fig. 2. Ditto, and Corolla.—Fig. 3. A Stamen.—Fig. 4. Germen, Style, and Stigmas.—Fig. 5. Capsule.—Fig. 6. Transverse section of ditto.—Fig. 7. A Seed.—Figs. 1, 3, & 4, a little enlarged.

^{*} From Erythros, Gr. red flower; the flowers in most of the species being of that colour.

+ See folio 48, note +.

[‡] So called from the Centaur Chiron, who was said to be thereby cured of a wound accidentally inflicted by an arrow of Hencules,

p. 19.—Cow. Fl. Guide. p. 30.—Mack. Catal Pl. Irel. p. 24.; Fl. Hibern. p. 186.—
Erythræa vulgaris, Gray's Nat. Arr. v. ii. p. 337.—Chirónia; Centaúrium,
Curt. Fl. Loud. t. 247.—Engl. Bot. t. 417.—Woodv. Med. Bot. v. iii. p. 435. t. 157.—
Sm. Fl. Brit. v. i. p. 257.—With. (5th ed.) v. ii. p. 325.—Willd. Sp. Pl. v. i. pt. 11.
p. 1068.—Sibth. Fl. Oxon. p. 75.—Abb. Fl. Bedf. p. 47.—Thornt. Fam. Herb. p.
146, with a figure.—Davies' Welsh Bot. p. 23.—Relh. Fl. Cant. (3rd ed.) p. 97.—
Purt. Mid. Fl. v. i. p. 134.; and v. iii. p. 348.—Gentiana Centaurium, Linn. Sp.
Pl. p. 332.—With. (1st ed.) v. i. p. 141.—Lightf. Fl. Scot. v. i. p. 152.—Centaurium
minus, Ray's Syn. p. 286.—Centaurium parvum, Johnson's Gerarde, p. 547.

LOCALITIES.—In dry gravelly pastures, on heaths, and sometimes in woods; not uncommon.

Annual.-Flowers from July to September.

Root small, tapering, fibrous, of a yellowish colour. Stem from 6 to 12 inches high, upright, generally simple, angular, smooth, leafy, sometimes branched. Leaves opposite, sessile, smooth, bright green; those from the root oblong, blunt, numerous, depressed; the rest acute, egg-shaped, or elliptic-spear-shaped, the uppermost often bent inwards; all 3-ribbed, and quite entire. Flowers nearly sessile, upright, forming a corymbose, forked, more or less dense, leafy or bracteated, panicle. Bracteas opposite, awlshaped. Calyx upright, slender, about half the length of the tube of the corolla, to the base of which it is slightly united; segments tapering to a point, somewhat triangular, and connected by a membrane. Corolla salver-shaped; its tube long, and of a pale greenish colour; its limb of a most exquisite and brilliant pink, sometimes white; expanding only in sunshine, and closing almost as soon as gathered. Anthers yellow, twisted spirally in about 3 convolutions after shedding their pollen. Germen nearly filling the tube of the corolla, oblong, with a longitudinal furrow on each side. Style about half the length of the germen, cylindrical, cloven at the top, and divisible without much force all the way down. roundish, greenish-yellow. Capsule slender, brown, invested closely with the permanent dilated tube of the corolla, 1-celled, the edges of the valves turned inwards, but not so far as to meet. Seeds roundish, yellow.

This pretty plant is a native of most parts of Europe, and is esteemed as one of the most efficacious bitters of all the medicinal plants indigenous to this country. It is often substituted for gentian, and is equally efficacious. It is said to be the basis of the famous Portland Powder, which prevents fits of the goot, when taken in a large quantity, and for a long time together; but brings on induration of the liver, palsy, and apoplexy. A tincture of the leaves, and the upper part of the root, is a good medicine for weak stomachs and cachectic habits. A decoction of the whole plant destroys vermin, and cures psora. Linneus says, cows are not fond of this plant; and Dr. Stokes, that in sheep pastures it is frequently left untouched. Its intense bitterness caused it to be named by the ancients Fel Terræ, or Gall of the Earth.

The following couplet of JOANNES POSTIUS proves the estimation in which it was formerly held:

" Flos mihi suave rubet, sed inest quoque succus amarus, Qui juvat obessum bile, aperitque jecur."

Which GERARDE thus translates:

" My floure is sweet in smell, bitter my juyce in taste, Which purge choler, and helps liver, that else would waste."





EUPHO'RBIA *.

Linnean Class and Order. MONŒCIA+, MONA'NDRIA‡.

Natural Order. EUPHORBIA'CEÆS, Juss.—Lindl. Syn. p. 220; Introd. to Nat. Syst. of Bot. p. 102.—Rich. by Macgilliv. p. 539.—Loud. Hort. Brit. p. 533.—Mack. Fl. Hibern. p. 235.—Hook. Brit. Fl. (4th edit.) p. 418.—EUPHORBLE, Juss. Gen. Pl. p. 384.—Sm. Gram. of Bot. p. 184.—QUERNEALES; sect. EUPHORBINE; type, EUPHORBIA'CEÆ; subtype, EUPHORBIDÆ; Burn. Outl. of Bot.

pp. 523, 600, 602, & 604.—TRICOCCÆ, Linn.

GEN. CHAR. Involucrum (fig. 1, a.) of 1 leaf, tumid, with 4 or 5 marginal lobes, permanent, containing several (usually 12 or more) barren flowers (see figs. 2 & 3), intermixed with narrow bristly scales (fig. 4); and I central fertile flower (fig. 1, c); all stalked, and destitute of calyx, as well as of corolla. Nectaries (glands, Lindl. / (fig. 1, b.) 4 or 5, alternate with the lobes of the involucrum, fleshy, coloured, more or less lobed, or crescent-shaped, tumid, Barren Flower (fig. 3.) a single stamen, without calyx or Filament simple, hair-like, upright, its origin marked by a joint (see fig. 3, a.), often coloured, at the summit of the partial stalk. Anthers of 2 globose distinct lobes. Fertile Flower (see fig. 1, c. and fig. 2.) a single pistil, without calyx or corolla, on a longer partial stalk than the barren ones, prominent, mostly deflexed to one side. Germen (fig. 1, c.) hanging out of the involucrum, roundish, 3-lobed. Styles (fig. 1, d.) 3, terminal, equal, cloven about half way down, spreading, permanent. Stigmas bluntish. Capsule (fig. 5.) roundish, 3-lobed, of 3 cells, and 3 valves, with the partitions from the centre of each, bursting elastically. Seeds (figs. 6 & 7.) solitary, large, roundish, smooth or dotted.

The involucrum of one piece, including several barren flowers and one fertile one; the barren flower consisting of only a single stamen, without either calyx or corolla; the fertile flower of a single pistil, also destitute of calyx and corolla; the 3-cleft style; and the 3-lobed, 3-seeded germen; will distinguish this from other genera in the same class and order.

Fourteen species British.

EUPHO'RBIA HELIOSCO'PIA. Sun Spurge, Wart-wort. Ratweed. Churn-staff. Cat's Milk. Little-good.

SPEC. CHAR. Umbel of five 3-cleft, then forked, branches. Bracteas and Leaves membranous, inversely egg-shaped, serrated. Nectaries 4, undivided. Capsule smooth. Seeds reticulated and pitted.

* So named in honour of Eurmorbus, Physician to King Juba, who probably first used it. THORNTON.

Fig. 1. Involuerum, with its flowers; a. involuerum; b. nectaries; c. germen; d. Styles .- Fig. 2. Several barren Flowers, and one fertile one, with the involucrum removed.—Fig. 3. A single barren Flower; a. the joint, where it is united to the flowerstalk.—Fig. 4. One of the Scales which are intermixed with the flowers.— Fig. 5. Capsule, burst .- Figs. 6 and 7. Seed .- All, except fig. 6, more or less magnified.

[†] See folio 83, note †. t See folio 49, note t. Fee folio 143, a.

Engl. Bot. t. 883.—Curt. Fl. Lond. t. —Linn, Sp. Pl. p. 658.—Huds, Fl. Angl. (2nd ed.) p. 209.—Willd. Sp. Pl. v. ii. pt. 11. p. 914.—Sm. Fl. Brit. v. ii. p. 516.; Engl. Fl. v. iv. p. 63.—Willd. Sp. Pl. v. ii. p. 587.—Lindl. Syn. p. 221.—Hook. Brit. Fl. p. 381.—Macr. Man. Brit. Bot. pp. 203 & 204.—Lightf. Fl. Scot. v. i. p. 250.—Sibth. Fl. Oxon. p. 152.—Abbot's Fl. Bedf. p. 105.—Davies' Welsh Bot. p. 47.—Purt. Midl. Fl. v. i. p. 230.—Relh. Fl. Cant. (3rd ed.) p. 191.—Hook. Fl. Scot. p. 148.—Grev. Fl. Edin. p. 107.—Fl. Devon. pp. 81 & 137.—Johnst. Fl. Berw. v. i. p. 197.—Winch's Fl. Northumbl. and Durham, p. 58.—Walker's Fl. of Oxf. p. 262.—Bab. Fl. Bath. p. 44.—Dick. Fl. Abred. p. 53.—Irv. Lond. Fl. p. 279.—Luxf. Reig. Fl. p. 77.—Cow. Fl. Guide, p. 30.—Mack. Catal. Pl. Irel. p. 47; Fl. Hibern. p. 235.—Galarhœus helioscopius, Gray's Nat. Arr. v. ii. p. 256.—Tithymalus helioscopius, Ray's Syn. p. 313.—Johnson's Gerarde, p. 498.

Localities.—A common weed in gardens, and on cultivated ground, everywhere.

Annual.—Flowers from June to September.

Root tapering, fibrous. Stem from 6 to 12 inches high, sometimes more, upright, round, leafy, often branched at the base, slightly hairy upwards. Leaves inversely egg-shaped, alternate or scattered, few, finely serrated, tapering at the base, or stalked, smooth, bright green. Umbel of 5 branches or rays, each of which divides into three others, which again divide into two; the whole furnished with broad inversely egg-shaped, serrated bracteas, (involucrum and involucellum of LINNEUS,), which are larger than the leaves. Involucrum (calyx of LINN.) (fig. 1, a.) of a greenish yellow colour, with 4 or 5 segments. Nectaries (petals of Linn.) (fig. 1, b.) 4, attached to the margin of the involucrum, alternate with its segments, roundish, entire, at first green, then turning yellow. Barren Flowers (figs. 2 & 3.) about 12 in each involucrum, intermixed with narrow, branched scales (fig. 4.), and rising, 3 or 4 at a time, above the nectaries. Fertile Flower solitary, in the centre of the barren ones (see fig. 1, c. and fig. 2.) on a longer stalk, and mostly hanging out on one side of the involucrum. Capsule smooth. Seed (figs. 6 & 7.) of a purplish-brown colour, reticulated and pitted.

The whole plant abounds with a milky juice, which is very acrimonious; and hence it is often applied to warts for the purpose of destroying them, but great care should be used in its application, particularly near the eyes, as it will inflame the face to a great degree; it has been also used as a caustic for the bite of vipers. Dr. Johnston tells us, in his "Flora of Berwick-upon-Tweed," vol. i. p. 197, that there is on record the case of a boy, who was poisoned by eating some of the fresh herb.—According to Linkaus, if sheep eat it, they are purged by it, and their flesh acquires a bad taste; but this is not the case with cows.

A small, yellow, parasitic fungus (*Uredo Euphorbiæ*, Hook. Brit. Fl. vol. ii. pt. 11. p. 385.) is very common on this and some other species of *Spurge*, in the

Summer and Autumn.

WILD-FLOWERS.

"How thick the wild-flowers blow about our feet, Thick-strewn and unregarded, which, if rare, We should take note how beautiful they were, How delicately wrought, of scent how sweet, And mercies which do everywhere us meet, Whose very commoness should win more praise, Do for that very cause less wonder raise, And these with slighter thankfulness we greet, Yet pause thou often on life's onward way—Pause time enough to stoop and gather one Of these sweet wild-flowers—time enough to tell Its beauty over—this when thou hast done, And marked it duly, then if thou canst lay It wet with thankful tears into thy bosom well!"

R. C. TRENCH.



HIPPOCRE'PIS *.

Linnean Class and Order. DIADE'LPHIA+, DECA'NDRIA.

Natural Order. LEGUMINO'S A., Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Macgilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259.-Loud. Hort. Brit. p. 509.-Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—Hook. Brit. Fl. (4th ed.) p. 404.—Mack. Fl. Hib. p. 73.—LEGUMINA'CEÆ, Loud. Arb. Brit. p. 561.—PAPILIONA'-CEƇ, Linn.—ROSALES; sect. CICERINÆ; subsect. LOTIANÆ; type, LOTACEE; subtype, HEDYSARIDE; Burn. Outl. of Bot. pp. 614, 638, 642, & 657.

GEN. CHAR. Calyx (fig. 1.) inferior, bell-shaped, permanent, divided, about half way down, into 5, pointed, spear-shaped segments; the 2 uppermost shortest, and less deeply separated. Corolla (fig. 2.) papilionaceous, of 5 petals, their claws longer than the calyx; standard (fig. 3.) heart-shaped, ascending, with a vaulted claw; wings (fig. 4.) inversely egg-shaped, blunt, with flat broadish claws; keel (fig. 5.) of 2 combined petals, rounded, pointed, with very narrow separate claws. Filaments (see fig. 6.) 10; 9 united into a tube, open at the upper edge; the tenth quite distinct; all curved upwards at the extremity. Anthers roundish. Germen slender, compressed, tapering into an awl-shaped ascending style. Stigma strap-shaped, rather flattened, quite smooth. (fig. 7.) compressed, partly membranous, incurved, of several joints, each containing one seed, and curved like a horse-shoe (see fig. 8.); whence the upper edge of the legume appears as if cut into several rounded recesses. Seeds (fig. 9.) cylindrical or compressed, oblong, attached to the middle part of each curvature.

The smooth style; and the compressed, partly membranous, incurved legume, of many joints, which are curved like a horseshoe; will distinguish this from other genera, with diadelphous

stamens, in the same class and order.

One species British.

HIPPOCRE'PIS COMO'SA. Tufted Horse-shoe Vetch.

SPEC. CHAR. Legumes from 5 to 8, in an umbellate tuft, crowded, pedunculated, curved, rough, sinuated on both margins.

Engl. Bot. t. 31.—Jacq. Fl. Austr. vol. v. p. 14. t. 431.—Linn. Ins. Huds. Fl. Angl. (2nd edit.) p. 321.—Willd. Sp. Pl. v. iii. pt. 11. p. 1159.—Sm. Fl. Brit. v. ii. p. 777.; Engl. Fl. v. iii. p. 291.—With. (7th ed.) v. iii. p. 848.—Gray's Nat. Arr. v. ii. p. 618.—Lindl. Syn. p. 88.—Hook. Brit. Fl. p. 326.—Macr. Man. Brit. Bot. p. 57.—Don's Gen. Syst. of Gard, and Bot. v. ii. p. 277. f. 42.—Sibth. Fl. Oxon. p. 226.—Abbot's Fl. Bcdf. p. 159.—Relh. Fl. Cant. (3rd edit.) p. 296.—Purt. Midl. Fl. v. iii. p. 62.—Hook. Fl. Scot. p. 216.—Fl. Devon. pp. 123 & 175.—Winch's Fl. of Northumbl. and Durh. p. 48.—Walker's Fl. of Oxf. p. 210.—Bab. Fl. Bath. p. 13.—Irv. Lond. Fl. p. 176.—Luxf. Reig. Fl. p. 64.—Cow. Fl. Guide,

Fig. 1. Calyx.—Fig. 2. Calyx and Corolla.—Fig. 3. Standard.—Fig. 4. One of the Wings.—Fig. 5. The Keel.—Fig. 6. Stamens.—Fig. 7. A Legume.—Fig. 8. A separate joint of ditto.—Fig. 9. A Seed.

^{*} From hippos, Gr. a horse; and krepis, Gr. a shoe; in reference to the shape of the recesses of the pods, which are curved in such a manner as to give them a likeness to a horse's shoe. Don.

[†] See folio 77, note †.

[#] See folio 117, note #.

p. 34. - Ferrum equinum Germanicum, siliquis in summitate, Ray's Syn. p. 325. - Blackst. Sp. Bot. p. 21.

LOCALITIES.—On banks, and in pastures, on a calcarious soil.—Oxfordshire; Bullington Green; Stokenchurch Hills; and Burford Downs: Dr. Sibthoup. Headington Quarry, in abundance: June 14, 1831; W. B. Between Woodstock and Enstone: Rev. W. T. Bref.—Berks; Near the Sham at Henley: May, 1831; W. B.—Beds. Baiton Hill: Rev. C. Abbot.—Bucks; Hedsor, &c.: Mr. W. Hubst, in N. B. G.—Cambridgeshire; Chalk pit Close; Gogmagog Hills; Chippenham; Linton; and Newmarket Heath: Rev. R. Relham. Cherry Hinton: J. E. Leffe, in N. B. G.—Derbyshire; A mile or two up Dove Dale; and in Monsall Dale: N. B. G.—Devon. Rocks about Babbicombe and Torquay: Fl. Devon.—Durham; On Coonkley Fell, at an elevation of above 1,500 feet: N. J. Winch, Esq.—Gloucestershire; Clifton: G. Rogers, in N. B. G. Upper Slaughter: Rev. E. F. Witts.—Kent; Between Northfleet and Gravesend: Cambben. About Ospringe near Faversham: E. Jacob, Esq. Near Gravesend: Blackstone. Under Dover Cliffs: Mr. W. Christy.—Lancashire; Rocks at Kellet: G. Crosfield, Fsq.—Norfolk; At Marham: Sir J. E. Smith. Swaffham: Mr. Woonward.—Notts; In Nottingham Park, but not very common: Dr. Deering.—Somersetshire; On Wick Cliffs, and St. Vincent's Rocks: Rev. G. Swayne. Coppe at Ford, on the Pollen Hills: J. C. Collins, in N. B. G. Brean Down: W. C. Trevellyan, Esq. in N. B. G. Wyck; Combehay; Conkwell; and on many parts of the hills: C. C. Barngton, Esq.—Surrey; Field behind Juniper Hill; and about old quarries West of Dorking: N. J. Winch, Esq. Epsom Downs: Mr. W. Pamplin, jun. Coulsdon: E. Wood, in N. B. G. Plentiful on Reigate Hill: G. Luxford.—Sussex; West of the County: N. B. G.—Westmoreland; Scout Scar; and Hellbeck Scar: N. B. G.—Wilts; On the high grounds North of Marlborough: Withering. Box, and Corsham: N. B. G.—Westmoreland; Scout Scar; and Hellbeck Scar: N. B. G.—Wilts; On the high grounds North of Marlborough: Withering. Box, and Corsham: N. B. G.—Westmoreland; Scout; Sode of Bredon Hill, below the Camp: Nas.—Yorkshire; Avsgarth Force, Wensleydale; Malham Cove; Craven; Rocks

Perennial.—Flowers from April to August.

Root thick, woody, fibrous, running deep into the ground; yellow on the outside, white within. Stems several, much branched. furrowed, glossy, smooth, or slightly hairy, leafy, procumbent, from 3 inches to a foot long. Leaves alternate, pinnate; leaflets uniform, from 7 to 11, inversely egg-shaped, blunt, minutely pointed, somewhat fleshy; smooth on the upper surface, more or less hairy on the under. Stipulas in pairs, egg-shaped, entire, rather spreading. Peduncles axillary, and terminal, round, smooth, somewhat furrowed, longer than the leaves, and bearing, at their summit, an umbel of from 5 to 10 flowers, each on a very short, slightly hairy pedicel. bent down after flowering. Calyx small, striated, slightly pubescent, its teeth short and spreading, the two upper distant from the lower, and less deeply divided. Corolla pale yellow; standard striated in front with very delicate veins. Legumes about an inch long, curved downward, of a bright-bay colour, rough with minute prominent tubercles; their joints crescent-shaped (see fig. 8.), nearly cylindrical, obscurely 2-edged, but neither dilated nor bordered.

This very pretty plant is a native of Europe, in Germany, Italy, France, Austria, and Britain; but it appears not to have been found in Ireland, as it is not noticed in Mr. Mackay's Flora Hibernica, published in 1836. It is said to be also indigenous to the north of Africa. It is quite worthy of cultivation in the garden, and is well fitted for ornamenting banks and rock-work. The flowers very much resemble those of Lotus corniculatus, t. 249; but the plant may be readily distinguished from that by its pinnated leaves, and its curiously notched legumes.



Imperatoria Ostruthium. Great Masterwort. 4
Russel sel . Eut. by W. Easter, Botanic Carden Oxford, 1840. Martera Sc.

IMPERATO'RIA*.

Linnean Class and Order. PENTA'NDRIA+, DIGY'NIA.

Natural Order. Umbelli'feræ‡, Juss. Gen. Pl. p. 218.—Sm. Gram. of Bot. p. 132.—Lindl. Syn. p. 111; Introd. to Nat. Syst. of Bot. p. 4.—Rich. by Macgilliv. p. 463.—Loud. Hort. Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 235.—Mack. Fl. Hibern. p. 113.—Hook. Brit. Fl. (4th edit.) p. 408.—Umbellatæ, Linn.—Rosales; sect. Angelicinæ; type, Angelicaceæ; subtype, Angelicidæ; Burn. Outl. of Bot. v. ii. pp. 614, 770, 773, & 774.

Flowers (see fig. 1.) all perfect and prolific, the GEN. CHAR. outermost only very slightly irregular. Calyx none. Corolla (fig. 1.) of 5 inversely heart-shaped petals, with a slender incurved point. Filaments (see fig. 1.) 5, thread-shaped, spreading, longer than the Anthers almost globular. Germen (see fig. 2.) inferior, nearly orbicular, compressed, ribbed. Styles (see fig. 2.) 2, short, distant, egg-shaped, and very tumid at the base. Stigmas capitate. Floral-receptacle (stylopodium, Hoffm.) none. Fruit (see figs. 3. and 4.) orbicular, crowned with the bases of the styles, having a hollow at top and at bottom, and a rounded, dilated, closely compressed margin. Carpels (see figs. 5 & 6.) convex, with 3 prominent dorsal ribs, and a broad, flat, even border, as wide at each side as the body of the carpel. Interstices (see fig. 6.) with single vittæ. Seed flat on its inner face. Involucrum variable; involucellum many-leaved.

Distinguished from other genera, in the same class and order, by the obsolete calyx; the inversely heart-shaped, very slightly irregular petals, with inflexed points; the solid, unarmed, transversely compressed fruit, with a broad thin margin; the carpels with 3 prominent dorsal ribs, and 2 nearly obsolete marginal ones, contiguous to, or combined with the margin; and the interstices with single vittæ. Differs from Peucedanum in the calyx being obsolete.

One species British.

IMPERATO'RIA OSTRU'THIUM. Sparrow Masterwort. Great Masterwort. Broad-leaved Hog's Fennel. Bastard Pillitory of Spain.

SPEC. CHAR. Lower leaves twice ternate; upper ones less compound; leaflets broad, smooth, rough edged, finely and sharply serrated, partly cut or lobed, sometimes 3-cleft. Sheaths of leaves dilated.

Engl. Bot. t. 1380.—Woodv. Med. Bot. v. i. p. 102. t. 35.—Linn. Sp. Pl. p. 371.—Huds. Fl Angl. (2nd ed.) p. 649.—Willd. Sp. Pl. v. i. pt. 11. p. 1458.—Sm. Fl. Brit. v. i. p. 327.; Engl. Fl. v. ii. p. 78.—With. (7th edit.) v. ii. p. 391.—Macr. Man. Brit. Bot. p. 103.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 335.—Lightf. Fl. Scot. v. i. p. 168.—Thornt. Fam. Herb. p. 298, with a figure.—Hook. Fl. Scot. p. 94.—Grev. Fl. Edin. p. 67.—Winch's Fl. of Northumbl. and Durh. p. 19.—Burn.

Fig. 1. A separate Flower.—Fig. 2. Germen and Styles, with a partial flower-stalk, and a leaf of the involucellum.—Figs. 3 & 4. The Fruit.—Figs. 5 & 6. Transverse section of the same.—All, except figs. 2 and 3, more or less magnified.

So named from its supposed imperial virtues in medicine. Don.
 † See folio 48, note †.
 ‡ See folio 235, α.

Outl. of Bot. v. ii. p. 778.—Lindl. Fl. Med. p. 49.—lrv. Lond. Fl. p. 234.—Imperatoria major, Bauh. Pin. p. 156.—Gray's Nat. Arr. v. ii. p. 519.—Imperatoria, Johnson's Gerarde, p. 1001.—Peucédanum Ostráthium, Koch. Umb. p. 95.—Lindl. Syn. p. 116.—Hook. Brit. Fl. p. 119.—Mack. Fl. Hibern. p. 116.

Localities.—In moist meadows and pastures; rare. A doubtful native.—Cheshire; Near J. Oldham's garden at Hyde, probably an outcast: Mr. Braddury.—Cumberland; By a brook from the N. end of Thirlmere, in a field by the road-side: Mr. H. C. Watson, in N. B. G.—Durham; At Newbiggen, near Middleton; and in Teesdale Forest: Rev. J. Harriman. On the banks of Dadree Burn, between Dadree Shield and the Wear: N. J. Winch, Esq. At Cotterton, near Barnard-castle: Mr. E. Rodson.—Shropshire; Near Bridgenorth, but in a situation that would allow of its being an outcast of a garden: Dr. Withering.—Westmoreland; "I found this plant in crossing the Moors from Brough to Middleton in Teesdale, in a meadow immediately after crossing the Lune, as truly wild as ever plant was": Mr. Brunton, in B. G.—Yorksh. Cotherstone, near Barnard-castle: Mr. Robson. Busk, near Semer Water, Wensleydale; and near Thoralby: J. Ward, in N. B. G.—SCOTLAND. Argyleshire; Near Mountisewart, Isle of Bute: Rev. J. Lightfoot.—Dumbartonshire; Banks of the Clyde, in several places, patieularly about Ardencaple: Rev. J. Lightfoot.—Edge of woods on the side of Gair Loch, sparingly: Mr. Murray.—Edinburghshire; Near Borthwek Castle: Messis. Maughan and Shuter.—Edinburghshire; Near Borthwek Castle: Messis. Maughan and Shuter.—Effeshire; At Milnathort, two miles north from Kinross: Mr. Maughan.—Lanarkshire; On an old wall at Langland House; and in waste ground near Jackton: Fl. Glot.—Linlithgowshire; Plantation opposite the house of Black Hall, West Lothian: Mr. Maughan.—Peebleshire; On the side of the Tweed, about half a mile above the old Castle of Drummelzier: Dr. Burgess, in Fl. Scot.—IRELAND. County of Down; Old hedges on the town-land of Ballydolaghan, to all appearance perfectly wild: Mr. Campbell, in Fl. Hibernica.

Perennial.—Flowers in June.

Root thick and fleshy, tuberous, brown on the outside, whitish within, somewhat creeping, with many lateral fibres. Stem upright, from 1 to 2 feet high, hollow, round, striated, smooth, leafy, simple, or slightly branched. Lower leaves on long petioles, twice ternate; upper leaves less compound, on shorter petioles; with a sheathing, membranous, sometimes jagged, dilatation at the base. Leaflets broad, veiny, smooth on both sides, rough-edged, sharply and unequally serrated, partly cut or lobed, the middle one, sometimes all three, deeply 3-cleft; the uppermost often very narrow. Umbels few, terminal, large, flattish, of many (often 40 or more) smooth rays. Umbellules of still more rays; with an involucellum (partial involucrum) of several bristle-shaped leaves. Flowers white, or pale flesh-coloured, numerous; petals equal, inflexed. Styles short, reflexed, capitate. Fruit nearly circular, smooth, strawcoloured, shining, with a notch at the top and bottom. Carpels compressed, surrounded at the sides with a broad thin margin, and marked on the back with three white, acute-angled ribs, not winged; the inner face flat.

This plant is a native throughout Europe; also in Newfoundland. It is thought not to be an original native of Britain, but is considered to have become naturalized from gardens, it having been much cultivated formerly for the sake of its root, which is of an aromatic and aerid quality, and was long supposed a sovereign counter poison, and celebrated as a powerful external, as well as internal remedy in numerous disorders. It is said to be a sudorific, diurctic, and sialogogue; recommended in dropsy and debilities of the stomach and bowels. An infusion of it in wine is said to have cured quartan agues which had resisted the influence of Peruvian bark. Half a dram of the root in substance, and one dram of it in infusion, is the quantity directed to be taken four times a day. It has been recommended as a masticatory to relieve the toothache; and many writers on Materia Medica speak well of it as a febrifuge.



CMathem, Del & Sc.

Publ by W. Baster Betanic Gardon Oxford 1846.

QUE'RCUS*,

Linnean Class and Order. Monce'cia +, Polya'ndria.

Natural Order. Cupuli'feræ, Richard.—Lindl. Syn. p. 239; Introd. to Nat. Syst. of Bot. p. 97.—Rich. by Macgilliv. p. 545.—Amenta'ceæ, Linn.—Juss. Gen. Pl. p. 407.—Sm. Gram. of Bot. p. 189.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 242.—Hook. Brit. Fl. (4th ed.) p. 419.—Querneales; sect. Quercinæ; type, Corylaceæ; Burn. Outl. of Bot. v. ii. pp. 523 & 531.

GEN. CHAR. Sterile and fertile Flowers on the same plant. Sterile Flowers (figs. 1 & 2.) in a long, slender, lax, pendulous catkin, deciduous. Calyx (bractea, Loud.) (see fig. 2.) a scale of 1 leaf, in 4, 5, or more, deep, often divided, segments. Corolla Filaments (see fig. 2.) from 5 to 10, short, awl-shaped. Anthers roundish, of 2 channelled lobes. Fertile Flowers (see figs. 3 & 4.) on upright, axillary peduncles; a few upon a peduncle. Calyx double, both permanent, outer one hemespherical, coriaceous, single flowered (see figs. 4 & 6.), intire, much enlarged in the fruit (see fig. 7, b), and externally scaly, or tuberculated; inner of one leaf, in 6 minute, deep, sharp, downy, segments, closely surrounding the germen and base of the style. Corolla none. Germen (fig. 5,) 1, globose, of 3 cells, with the rudiments of 2 seeds in each, that at first are erect, but soon after pendulous. Style (see fig. 5.) Stigma 3-lobed, rather fleshy. Fruit (see fig. 7, a.) an acorn, mostly oblong, or egg-shaped; its lower part invested with an imbricated cup (outer calyx) (fig. 7, b); its base scared; the rest of its surface invested with the adherent, coriaceous, smooth, inner calyx, which is separable by art; cell 1, seed 1, very rarely 2. Cotyledons large, half-egg-shaped; without any separate albumen; embryo at the top.

The loose, pendulous eatkins of sterile flowers, with a calyx of 1 leaf in several deep segments; the fertile flowers with a scaly cup-shaped, entire, outer calyx; a germen with 3 cells, 2 of which are abortive, and a 3-lobed stigma; and the fruit a 1-celled, 1-seeded acorn, seated in the eup-shaped, enlarged, outer calyx or involucrum; will distinguish this from other genera, in the same class and order.

Two species British.

QUE'RCUS ROBUR‡, Common British Oak. Peduncled British Oak. English Oak. Naval Oak. Longlived Oak.

Spec. Char. Leaves deciduous, oblong, wider towards the extremity; sinuses rather acute; lobes blunt. Fruits 2 or 3 upon a long peduncle. Acorn oblong.

Engl. Bot. t. 1342.—Woodv. Med. Bot. v. ii. p. 344. t. 126.—Mart. Fl. Rust. t. 10; the stalked variety.—Hunt. Evel. Sylv. p. 69, with a plate.—Linn. Sp. Pl. p. 1414.—Huds. Fl. Angl. (2nd edit.) p. 421. excl. var. ß.—Sm. Fl. Brit. v. iii. p. 1026.; Engl. Fl. v. iv. p. 148.—With. (7th ed.) v. ii. p. 502.—Lindl. Syn. p. 240.—Hook. Brit. Fl. p. 407.—Maer. Man. Brit. Bot. p. 216.—Lightf. Fl. Scot. v. ip. 581. var. 1.—Sibth. Fl. Oxon. p. 133.—Davies' Welsh Bot. p. 90—Thorn. Fam.

Figs. 1 & 2. Sterile Flowers.—Figs. 3 & 4. Fertile ditto.—Fig. 5. Germen and Pistl.—Fig. 6. Young Fruit.—Fig. 7. Ripe Fruit; a. the acorn; b. the enlarged outer calyx, with the acorn removed.—All, except figs. 1, 3, & 7, more or less magnified.

^{*} From the Celtie quer, beautiful; and cuez, a tree. It produced the Misseltoe of the Druids, and was thence called also derw; hence drus, in Greck, and Dryades. Hooker.

* Kobur, strength; in allusion to the quality of the wood.

Herb. p. 762, with a figure.—Purt. Mid. Fl. v. ii. p. 459.—Relh. Fl. Cant. (3rd ed.) p. 395.—Hook. Fl. Seot. p. 273.—Grev. Fl. Edin. p. 202.—Fl. Devon. pp. 155 and 133.—Johnst. Fl. of Berw. v. i. p. 206.—Winch's Fl. of Northumbl. and Durh. p. 61.—Walker's Fl. of Oxf. p. 281.—Bab. Fl. Bath. p. 46.—Dick. Fl. Abred. p. 56.—Luxf. Reig. Fl. p. 82.—Cow. Fl. Guide, p. 43.—Mack. Catal. Pl. Irel. p. 83.; Fl. Hibern. p. 255.—Quercus Pedunculáta, Willd. Sp. Pl. v.iv. p. 450.—Abbot's Fl. Bedf. p. 210.—Loud. Arb. et Frutic. Brit. p. 1731. f. 1567; Fl. 281, a., 282, and 282, a.—Lindl. Fl. Med. p. 291.—Quercus longæva, Gray's Nat. Arr. v. ii. p. 247.—Q. fæmina, With. (5th ed.) v. ii. p. 480.—Q. latifolia, Ray's Syn. p. 440.—Q. vulyaris, Johnson's Gerarde, pp. 1339, 1340.

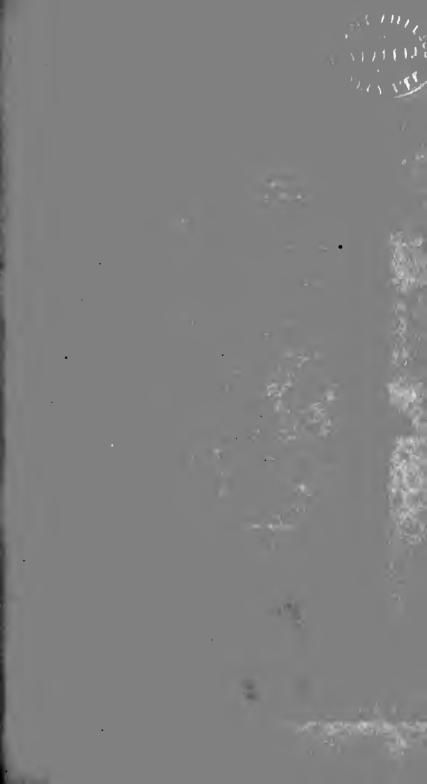
Localities .- In woods and hedges, everywhere.

A Tree .--- Flowers in April.

A large and very handsome tree, growing to the height of 50, or even 100 feet, with a rough bark, and widely extended, nearly horizontal, and somewhat flexuose or zigzag branches, and spray; and, when standing singly, with a head often broader than it is high. Leaves alternate, nearly sessile, smooth, sbining above; paler, and slightly glaucous beneath, with a single mid-rib, and veins passing into the lobes. Sterile Flowers in long, slender, drooping, many-flowered, deciduous catkins; fertile ones on axillary, simple peduncles, 2 or 3 on each peduncle, small, brownish-green; their outer calyx becoming much enlarged, and hardened, and constituting the well-known permanent cup of the smooth, finally deciduous, nut, or acorn.

The uses of this noble and most important tree are well known. The wood is hard and tough, very durable, tolerably flexible; not easily splittering; and therefore is preferred to all other timber for building of ships. The accorns were the food of the ancient Bittains, and particularly of the Druds, but they are little used at present, except to fatten hogs and deer. Rought says they may be used as coffee, and that they have the property of strengthening the nerves. The bark, which is very astringent, is extensively used in tanning leather. It is also used in medicine; and an infusion of it, with a small quantity of copperas, is sometimes used to dye woollen of a purplish-blue; the colour, though not bright, is durable. The galls, (or oak-apples, as they are sometimes called,) which are found upon the leaves of this tree, appear to be the most powerful of the vegetable astringents, striking a deep black when mixed with a solution of ferrum vitriolatum, and therefore preferred to every other substance for the purpose of making ink. Reduced to a fine powder, and made into an ointment, they have been found of great service in hamon holdal affections. Oak saw-dust is the principal indigenous vegetable used in dying fustian; all the varieties of drabs and different shades of brown, are made with oak saw-dust, variously managed and compounded .- A great number of insects depend more or less for subsistance on the Oak tree; and the different species of Mosses, Lichens, and Fungi, that are parasitical upon it, are too numerous to particularize here. They may be seen in Mr. Loudon's Arboretum et Fruticetum Britannicum.

The Oak, as Dr. Johnston observes, in his excellent Flora of Berwick-upon-Tweed, "has ever been a favourite with Britains. Under its shade, the Druids, the priests of his ancestors, held their solemn festivals: in after centuries its timber supported and beautified the venerable eathedrals raised for a purer worship; the palaces of his princes rose on pilasters of Oak, and it was the board of their festivities; but, above all, it is dear to him as the material of the 'wooden walls' of his native isle."-The most complete account of this and the other British species (Q. sessilliflora), that has ever been written, is given in Mr. Loudon's Arboretum et Fruticetum Britannicum. In that most excellent work, Mr. Loudon has brought together, and properly arranged, every thing that is at present known respecting the Geography, History, Biography, Properties, Uses, Propagation, Culture, Statistics, &c. &c. of the Oak; with descriptions, and portraits, of all the most remarkable specimens of this "king of the forest," in every part of the country. The matter relative to the British Oaks alone, occupies 112 elosely printed pages, in small type, and is illustrated by 130 beautifully executed wood engravings, and many very interesting and appropriate extracts from the poets. Much valuable information on this subject may also be obtained from Dr. WITHERING'S Botanical Arrangements, 7th edition; and Miss Kenr's Sylvan Sketches.





Arundo Phragmites. Common Reed. W

ARU'NDO *.

Linnean Class and Order. TRIA'NDRIA +, DIGY'NIA.

Natural Order. Grami'neæ, Juss. Gen. Pl. p. 28.—Sm. Gram. of Bot. p. 86.; Engl. Fl. v. i. p. 71 —Lindl. Syn. p. 293.; Introd. to Nat. Syst. of Bot. p. 292.—Rich. by Macgilliv. p. 393.—Loud. Hort. Brit. p. 542.—Mack. Fl. Hibern. p. 294.—Hook. Brit. Fl. (4th ed.) p. 426.—Gramina, Linn. Graminales; sect. Festucinæ; type, Avenaceæ; Burn. Outl. of Bot. v. i. pp. 359 & 369.

GEN. CHAR. Panicle branched, loose. Spikelets (fig. 2.) from 3- to 6-flowered. Florets (see figs. 2 & 3.) in 2 rows, distant, not bearded; lowest floret with stamens only, the rest with both stamens and pistils. Rachis (see fig. 2.) beset with long silken hairs. Calyx (fig. 1.) of 2, membranous, unequal, keeled, awnless glumes, shorter than the florets, the lower much shorter than the upper. Corolla (fig. 3.) of 2 unequal, membranous palea; the lower very long, sharp pointed, and twice or thrice the length of the upper one. Filaments (see fig. 3.) 3, hair-like, about the length of the calyx. Anthers cloven at each end. Germen (see fig. 4.) inversely egg-shaped. Styles (see fig. 4.) 2, short. Stigmas (see fig. 4.) feathery, densely tufted. Scales (fig. 5.) 2, smooth, large, embracing the germen. Seed (cariopsis, Rich.) oblong, loosely covered by the corolla.

Distinguished from other genera, with loose panicles, in the same class and order, by the 3-to 6-flowered calyx of 2 unequal glumes; and the corolla of 2 very unequal paleæ, all, except the lower and imperfect one, with a tuft of hairs at their base.

One species British.

ARU'NDO PHRAGMI'TES. Hedge Reed. Common Reed. Bank-side Reed. Loch Reed.

SPEC. CHAR. Panicle spreading. Glumes acuminate, coloured, ribbed, about 5-flowered. Leaves spear-shaped, tapering to a fine, almost hair-like, point.

Almost Nair-inke, Point.

Engl. Bot. t. 401.—Knapp's Gram. Brit. t. 95.—Graves' Brit. Grasses, t. 114.—
Linn. Sp. Pl. p. 120.—Huds. Fl. Angl. (2nd edit.) p. 53.—Willd. Sp. Pl. v. i. pt. 1.
p. 454.—Leer's Fl. Herb. p. 45. t. 7. f. 1.—Sm. Fl. Brit. v. i. p. 144.; Engl. Fl.
v. i. p. 168.—With. (7th edit.) v. ii. p. 196.—Lindl. Syn. p. 310.—Hook. Brit. Fl.
p. 52.—Lightf. Fl. Scot. v. i. p. 106.—Sibth. Fl. Oxon. p. 50.—Abbot's Fl. Bedf.
p. 25.—Davies' Welsh Bot. p. 12.—Purt. Midl. Fl. v. i. p. 78.—Relh. Fl. Cant.
(3rd edit.) p. 47.—Hook. Fl. Scot. p. 27.—Grev. Fl. Edin. p. 17.—Fl. Devon. pp.
13 and 121.—Johnst. Fl. of Berw. v. i. p. 29.—Winch's Fl. of Northumbl. and
Durh. p. 8.—Walker's Fl. of Oxf. p. 31.—Bab. Fl. Bath. p. 58.—Murr. Nort. Fl.
p. 45.—Dick. Fl. Abred. p. 25.—Irv. Lond. Fl. p. 100.—Luxf. Reig. Fl. p. 10.—
Cow. Fl. Guide, p. 22.—Mack. Catal. Pl. Irel. p. 16.; Fl. Hibern. p. 313.—Arundo
vallatoria, Ray's Syn. p. 401.—Johns. Ger. p. 36.—Gray's Nat. Arr. v. ii. p. 128.
Arundo vulgaris, Scheuchz. Agrost. p. 161. t. 3. f. 14. D.—Phragmites communis, Macr. Man. Brit. Bot. p. 264.

LOCALITIES.—In marshes, wet ditches, and about the margins of lakes, rivers, &c.; common.

Fig. 1. Calyx.—Fig. 2. A Spikelet.—Fig. 3. A single Floret.—Fig. 4. Germen and Pistils.—Fig. 5. Nectary, or Scales.—Fig. 6. Seed.—All a little magnified.

^{*} From areo, arendo; soon becoming dry. WITHERING.

† See folio 56, note +.

Perennial --- Flowers from July to September.

Root creeping. Culms (stems) upright, stout, from 5 to 7 feet high, annual, hollow, with many knots, very smooth, shining, leafy. Leaves a foot long, or more, spear-shaped, broad, many-ribbed, rough-edged, egg-shaped at the base, tapering to a very fine point at the apex. Sheaths long, furrowed, with tufted, silky hairs, in place of a s'ipula. Panicle very large, brownish-purple, handsome, at first upright, and contracted, afterwards spreading, finally drooping. Spikelets spear-shaped, pointed, dark purple, from 3- to 6-flowered. Calyx of 2, unequal, purple glumes, shorter than the contained awnless florets, which are 6 or less in number. Each floret, except the lowermost, is accompanied by a tuft of long silky hairs at its base; which spring from the rachis or floral receptacle, and not from the florets themselves. As the flowers advance, the tufts of hairs become longer and more conspicuous.

This plant is a native throughout Europe, in Siberia, North America, &c. Thurberg is said to have observed it in Japan, with a wider panicle than ours, loose, but not diffused, and an herbaccous culm. It forms frequently patches of immense extent, called Reed-ronds in some parts of the west of England, where harbour many aquatic birds, and the rare Parus biarmicus, or Bearded Titmouse, which feeds upon the seeds. The panicles of flowers are often dried and introduced in Winter boquets; in Holland they are extensively used for making hearth-besoms; and in Lapland, for dyeing coarse cloths of a yellowish-green colour. The culms are much used for thatching, for which purpose they are superior to common straw; and in several of the feuny counties in England, not only cottages, but houses of a better description, are covered with them. Screens to keep off the cold winds in gardens are made of them; and they are laid across the frame of wood-work, as the foundation for plaster floors; they are in great request with brick-makers; and to make pens for sketching or etching where freedom is required. Till the introduction (in the seventh century) of the more proper pens (penna), made of the quills of birds, they were likewise in general use for writing, though inferior to those produced in warmer climates. They also occasionally serve for the shafts of arrows. The inner membrane of the culm makes an excellent hygrometer. The young shoots, if cut off from the root where not exposed to the light, make a good pickle. In the heads of this plant the Entomologist may often find a considerable variety of insects, whither they resort for food or shelter. Puccinia Graminis, flook. Brit. Fl. v. ii. pt. 11. p. 363, often occurs in great abundance on the leaves and culms of this species of Reed. This is the same parasitical fungus which so often attacks the wheat, and which is so injurious to corn. It is known to the farmers under the names of Blight, Mildew, and Rust. For very highly magnified figures of it, see two excellent engra

In most parts of the kingdom the Reed is annually cut; and in the fenny parts of Lincolnshire, Dr. Johnston tells us, it forms a valuable harvest. Pennant says, he saw a stock of Reeds, the property of a single farmer, which was worth from two to three hundred pounds. Swamps, and land occasionally overflowed, may be rendered very productive by being planted with Reeds, for which purpose pieces of the root should be placed in the ground, in rows, at a foot or 18 inches apart. A variety is sometimes found with variegated leaves.

Section 1

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JASI'ONE *.

Linnean Class and Order. PENTA'NDRIA +, MONOGY'NIA.

Natural Order. Lobelia/Ceæ‡, Juss.—Lindl. Syn. p. 137.; Introd. to Nat. Syst. of Bot. p. 187.—Mack. Fl. Hibern. p. 138.—Campanula/Ceæ, Juss. Gen. Pl. p. 163.—Sm. Gram. of Bot. p. 117.—Rich. by Macgilliv. p. 453.—Loud. Hort. Brit. p. 522.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 731.—Hook. Brit. Fl. (4th ed.) p. 411.—Campanaceæ, Linn.—Syringales; subord. Ericosæ; sect. Campanulinæ; Burn. Outl. of Bot. pp. 900, 937, and 938.

GEN. CHAR. (Flowers collected into a head, within a many-leaved Involucrum). Calyx (fig. 1.) superior, of 1 sepal, in 5 deep, pointed segments. Corolla (see fig. 4.) of 1 petal, wheel-shaped, in 5 deep, spear-shaped, equal, straight, moderately spreading segments. Filaments (see fig. 2.) 5, awl-shaped, short. Anthers oblong, united at their base. Germen (see fig. 2.) roundish, inferior. Style (see fig. 2.) cylindrical, upright, longer than the stamens. Stigma cloven, in some flowers club-shaped, and only slightly notched. Capsule (fig. 7.) bladdery, roundish, with 5 angles, imperfectly 2-celled, opening by a broad hole at top, with very short valves. Seeds (fig. 6.) numerous, very minute, ellipticoblong, shining.

Distinguished from other genera, with a superior calyx, in the same class and order, by the wheel-shaped, regular corolla, with a very short tube, and 5 long, strap-shaped segments; the united anthers; the bifid stigma; and the 2-celled capsulc.

One species British.

JASI'ONE MONTA'NA. Mountain Sheep's Scabious. Hairy Sheep's Scabious. Common Sheep's-bit. Mountain Jastone.

SPEC. CHAR. Leaves strap-shaped, waved, hispid. Peduncles solitary, elongated. Bracteas smooth. Root annual.

Engl. Bot. t. 882.—Curt. Fl. Lond. t. 245.—Fl. Dan. t. 319.—Linn. Sp. Pl. p. 1317.—Huds. Fl. Angl. (2nd ed.) p. 377.—Willd. Sp. Pl. v. i. pt. II. p. 888.—Sm. Fl. Brit. v. i. p. 241.; Engl. Fl. v. i. p. 296.—With. (7th ed.) v. ii. p. 310.—Gray's Nat. Arr. v. ii. p. 411.—Lindl. Syn. p. 137.—Hook. Brit. Fl. p. 99.—Maer. Man. Brit. Bot. p. 146.—Lightf. Fl. Scot. v. i. p. 504.—Sibth. Fl. Oxon. p. 85.—Abbot's Fl. Bedf. p. 189.—Davies' Welsh Bot. p. 22.—Purt. Midl. Fl. v. ii. p. 418.—Relh. Fl. Cant. (3rd ed.) p. 92.—Hook. Fl. Scot. p. 76.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 733.—Fl. Devon. pp. 38 and 154.—Winch's Fl. of Northumberl. and Durh. p. 14.—Walker's Fl. of Oxf. p. 58.—Murr. Northern Fl. p. 135.—Irv. Lond. Fl. p. 145.—Luxf. Reig. Fl. p. 21.—Mack. Catal. of Pl. Irel. p. 23.; Fl. Hibern. p. 138.—Rapunculus Scabiosæ capitulo cæruleo, Bauh. Pin. p. 92.—Ray's Syn. p. 278.—Scabiosa minima hirsuta, Johnson's Gerarde, p. 723.

LOCALITIES .- In dry sandy fields, and on heaths; not uncommon.

Fig. 1. Calyx.—Fig. 2. Calyx, Stamens, and Pistil.—Fig. 3. Separate Stamen.—Fig. 4. Separate Flower.—Fig. 5. Involucrum and Receptacle, with all the flowers, but one, removed.—Fig. 6. Seeds.—Fig. 7. Capsule.—Figs. 5 & 6, a little magnified.

^{*} From ion, Gr. a violet, from the blue colour of the flowers; but applied by PLINY to an esculent plant. HOOKER.

† See folio 48, note †.

‡ See folio 79, a.

Annual.—Flowers from June to August.

Root somewhat woody, tapering, whitish, and fibrous. several, nearly upright, from 6 inches to a foot or more high, simple or branched, rather rigid, roundish, leafy, clothed with short rough hairs. Leaves numerous, alternate, sessile, oblong, bluntish, wavy, entire or unequally serrated, gradually smaller from the root upwards. Peduncles naked, each bearing at its summit a round tuft of small, light-blue flowers, on short partial stalks; each tuft surrounded by several egg-shaped, smooth, bracteas (see fig. 5). Calyx (fig. 1.) deeply divided into 5 segments, permanent. Corolla (fig. 4.) of a light-blue colour, sometimes white, of 1 petal, divided nearly to the base into 5 long, narrow, strap-shaped, bluntish, upright segments. Anthers oblong, connected at the base. roundish, below the corolla. Style thread-shaped, longer than the stamens. Stigma club-shaped, purplish. Capsule (fig. 7.) imperfectly 2-celled, many-seeded, opening at the top, and crowned by the proper, 5-toothed calyx. Seeds numerous, somewhat eggshaped, shining.

A very pretty little plant, native of Europe, Siheria, and the north of Africa. It is closely related to *Phyteuma*, t. 205; but, as Sir J. E. Smith observes, the partitions of the *capsule*, and its terminal entire orifice, added to the combined *anthers*, afford perhaps good marks of generie distinction. In its general appearance it very much resembles a *Scabious*, as it does also starved specimens of the exotic *Gilia capitata*. The whole plant is milky, and is sometimes eaten by sheep. Linnaus says, that bees are particularly fond of the flowers. It varies much in size, and on the sea-coast of Cornwall it is only about an inch high when full grown, and the whole plant is very hairy.

Persoon observes, that the economy of the flowers of this genus is very singular. The florets of the disk have fertile anthers, which are united with each other only at the hase, and club-shaped, barren, hairy pistils. On the contrary, the florets of the circumference, which are furnished with true emarginate stigmas, proper for fertilizing the seeds, have harren stamens; hence the proper stigmas receive the pollen from the club-shaped ones, upon which it is first received, as they pass through the anthers. See Linn. Syst. Veg. (15th edit.) p. 841; and With. Bot. Arr. (7th edit.) v. ii. p. 311.

I trust no apology is necessary for introducing here the following very beautiful lines, from the pen of that true poetess of nature, Mrs. Mary Howitt.

"On the third day of creation, before mankind had birth,
Ten thousand thousand flowers sprang up, to heautify the earth;
From the rejoicing earth sprang up each radiant, bursting bud;
And Gop looked down, at eventide, and saw that they were good.
And now, as then, ten thousand flowers from the gracious earth outburst,
And every flower that springeth up is goodly as the first:
The red rose is the red rose still; and from the lily's eup
An odour, fragrant as at first, like frankincence goes up.—
Oh, flowers, fair shining flowers, like crowned kings ye are!
Each, in the nature of its kind, unchanging as a star;—
Empires have fallen to decay, forgotten e'en in name—
All man's sublimest works decay, but ye are still the same!"

Literary Souvenir, 1837.

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MY'RRHIS*.

Linnean Class and Order. PENTA'NDRIA+, DIGY'NIA.

Natural Order. UMBELLI'FERƇ, Juss. Gen. Pl. p. 218.—Sm. Gram. of Bot. p. 132.—Lindl. Syn. p. 111; Introd. to Nat. Syst. of Bot. p. 4.—Rich. by Macgilliv. p. 463.—Loud. Hort. Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 235.—Mack. Fl. Hibern. p. 113.—UMBELLATÆ, Linn.—ROSALES; sect. ANGELICINÆ; type, SMYRNIACEÆ; subtype, SCANDICIDÆ; Burn. Outl.

of Bot. pp. 614, 700, 780, & 781.

GEN. CHAR. Flowers imperfectly separated; the innermost Calyx an obsolete margin. Corolla (fig. 1.) of 5, somewhat unequal, uniform, inversely egg-shaped, emarginate petals, with an inflexed taper point. Filaments (see fig. 1.) 5, threadshaped, spreading, as long as the petals, or longer. Anthers roundish. Germen (fig. 2.) inferior, linear-oblong, somewhat club-shaped, blunt, furrowed, smooth, slightly compressed. Styles (see fig. 2.) 2, awl-shaped, a little spreading, very tumid, and almost globose, at Stigmas blunt, or slightly capitate. Floral Receptacle the base. wanting. Fruit (figs. 3 & 4.) strap-spear-shaped, compressed at the sides, a little curved, deeply furrowed, without a beak, the summit crowned with the thick bases of the spreading, permanent Carpels (see figs. 3 & 4.) with a double membrane, the outer one acutely keeled by 5 equal, sharp ridges, which are hollow inside; the inner one adhering closely to the seed. Vittæ wanting. Seed involute. Universal involucrum none; partial involucrum Flowers white. many-leaved.

The obsolete calyx; the inversely egg-shaped, emarginate, inflexed petals; the laterally compressed, beakless fruit, with a deep furrow at the suture; and the carpels with 5 very prominent, sharp, keeled ridges, with the interstices destitute of vittæ, will distinguish

this from other genera in the same class and order.

One species British.

MY'RRHIS ODORA'TA. Sweet Cicely. Great Chervil. Sweet

Chervil. Myrrhe. Sweet Fern.

SPEC. CHAR. Leaves large, rather villose beneath, very compound. Fruit large, with very short ribs, and deep furrows between them.

Scop. Fl. Corn. (2nd ed.) v. i. p. 207.—Sm. Engl. Fl. v. ii. p. 50. With. (7th ed.) v. ii. p. 390.—Gray's Nat. Arr. v. ii. p. 503.—Lindl. Syn. p. 125.—Hook. Brit. Fl. p. 132.—Macr. Man. Brit. Bot. p. 106.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 369.—Grev. Fl. Edin. p. 67.—Winch's Fl. of Northumbl. and Durham, p. 18.—Walker's Fl. of Oxf. p. 77.—Dick. Fl. Abred. p. 31.—Mack. Fl. Hibern. p. 127.—Myrrhis major vulgaris, sive Cerefolium majus, Park. Theat. Bot. p. 935.—Scandix odorata, Linn. Sp. Pl. p. 368.—Engl. Bot. t. 697.—Jacq. Fl. Aust. vol. v. p. 48. App. t. 27.—Huds. Fl. Angl. (2nd ed.) p. 124.—Willd. Sp. Pl. v. i. pt. 11. p. 1449.—Sm. Fl. Brit. v. i. p. 323.—Lightf. Fl. Scot. v. i. p. 166.—Sith. Fl. Oxon. p. 100.—Davies' Welsh Bot. p. 29.—Purt. Midl. Fl. v. i. p. 153.—Perry's Pl. Varv. Selectæ, p. 26.—Irv. Lond. Fl. p. 234.—Charophyllum odoratum, Hook. Fl. Scot. p. 93.—Cerefolium magnum, sive Myrrhis, Johnson's Gerarde, p. 1039.

Fig. 1. A Flower.—Fig. 2. Germen.—Fig. 3. Fruit.—Fig. 4. Transverse section of ditto.—Figs. 1 & 4, slightly magnified.

^{*} From myron, Gr. perfume; or myrrha, Gr. myrrh; scent of plant. Dos † See folio 48, note †. ; See folio 235, a.

Localities.—In mountainous pastures, banks of rivers, &c. especially in the morth of England, and lowlands of Scotland.—Cheshire; Banks of rivers near Stockport: Mr. G. Holme. Very common by the banks of the river Goyt: N. B. G.—Cumberland; Woods on the E. side of Derwentwater, looking very like a genuine native: Mr. H. C. Watson, in N. B. G. Common in orchards: Huychinson. About Keswick: D. Tunner, Esq.—Derbysh. Banks of the Derwent above Chatsworth; about Buxton; and in the little inclosed meadows about Poole's Hole at Buxton: B. G. Banks of the Goyt river, just below Whaley Bridge; by the Derwent near Duffield; Codnor Breach; and Wirksworth: N. B. G.—Durham; In Dalton Dene; in Cawsey; Beamish; Urpeth; and every other wood on the Team; on the banks of Browney, near Coldpignill, and ruins of Finchall Abbey; also in Weardale, frequent: N. J. Winch, F.sq. In the vicinity of Darlington, and Eglestone: Rev. J. Harriman. Near Harperley; Lanchester Ford; and on the banks of the Wear above Stanlope: N. J. Winch, Esq.—In Lancashire, frequent: Hudson.—Northumberland; Banks of the Tyne at Low Park End; and in Tucket Wood: N. J. Winch, Esq. In the woods at Wallington, and at Netherwitton: W. C. Trevellyan, Esq.—Notts; Near Bramcote: N. B. G.—Shropsh. At White Ladies, near Boscabel: B. G. On Benthall Edge, near Coalbrookdate: N. B. G.—Somersetsh. Hedges by the road-side between West-street, Bridgewater, and Enmore: N. B. G.—Steffordsh. At Tixall, near Stafford: B. G.—Warwicksh. At Studley Castle; and Balsall Temple: T. Purton, Esq.—Westmoreland; Kendal: N. B. G.—Worcestersh. In an orchard at the top of Southstone's Rock, near Shelsey Wash: Mr. Balland.—Forksh. Meadows between Morton and Rushworth; in the wood at Knarcsborough, where the dripping well is; upon the side of every rivulet in Wensley Dale; Hackfall; banks of the Ure, from Wensley Dale for some miles eastward, in plenty; about Coxwold; in many parts of Craven; and near Leeds: B. G. In Stackhouse Lane, and other places about Settle; and by the Swale under Whitcl

Perennial.—Flowers from May to July.

Root tapering, thick, fleshy, branched, with a sweet aromatic taste, like every other part of the plant. Stem 2 or 3 feet high, sometimes more, round, leafy, striated, hollow. Leaves large, bright green, 2, 3, or 4 times compound, with pinnatifid, pointed, serrated, slightly hairy leaflets; the root-leaves on long cylindrical petioles; the rest with very short ones, which are dilated at the base, with membranous edges, so as to be almost sessile. Umbels large, terminal, and lateral, both universal and partial ones of many downy rays. Universal involucrum none; Partial ones of about 5, spear-shaped, tapering, whitish, membranous, finely fringed leaves. Flowers numerous, white; many of those in the centre abortive, with stamens only; several in the circumference fertile. Germen (fig. 2.) oblong, a little hairy. Fruit (fig. 3.) nearly an inch long, dark brown, spear-shaped, pointed, not beaked, crowned with the two spreading styles. Carpels each with 3 very prominent, compressed, dorsal ridges, rough, like fine saws, near the summit.

This plant is a native of Middle and South Europe, from Spain to Asia Minor; Germany, Switzerland, Austria, the South of France, and the North of Italy; it is also to be found in Chili. It was one of the old medicinal plants, but it is now disneed. The seeds have the flavour of Anise, and are used in the North of England for polishing and perfuming oak floors and furniture. Formerly the young leaves and seeds were put into salads, and the roots were boiled and eaten, cold or in tarts, and in a variety of sauces. In Germany, it is said to be still used in soups.

Puccinia Umbelliferarum, and Uredo Petroselini, of Hook. Brit. Fl. are parasitic on the stems and leaves of this plant, in the Summer and Autumn. The leaves very much resemble the fronds of some of the ferns, and when the latter parasite occurs (as it often does) in small yellow spots on their under surface, it very much increases that resemblance.





COCHLEA'RIA *

Linnean Class and Order. TETRADYNA'MIA +, SILICULO'SA +.

Natural Order. CRUCI'FERÆ §, Juss. Gen. Pl. p. 237.—Sm. Gram. of Bot. p. 138.; Engl. Fl. v. iii. p. 153.—Rich. by Macgilliv. p. 498.—CRUCIFERÆ; subord. PLEURORHIZEÆ ||; tribe, ALYS-SINEÆ; Lindl. Syn. pp. 20, 21, & 25.; Introd. to Nat. Syst. of Bot. pp. 14 to 18 .- Loud. Hort. Brit. pp. 498 & 499.; Mag. Nat. Hist. v.i. pp. 143 & 240.—Don's Gen. Syst. of Gard. and Bot. v. i. pp. 146 & 147.—Mack. Fl. Hibern. pt. 1. p. 16.—Hook. Brit. Fl. (4th ed.) p. 397.—Rosales; subord. Rheadosæ; sect. Rhea-DINÆ; type, BRASSICACEÆ; subtype, ARABIDÆ; Burn. Outl. of Bot. pp. 614, 784, 847, 854, & 856.—SILIQUOS.E, Linn.

GEN. CHAR. Calyx (fig. 1, a.) inferior, of 4, egg-shaped, concave, spreading sepals, equal at the base, deciduous. Corolla (see fig. 2, b.) cruciform, of 4, inversely egg-shaped, entire, spreading petals, twice the length of the calyx, with short claws. Filaments (see fig. 2, c. and fig. 3.) 6, 2 shorter than the other 4, awl-shaped, toothless, incurved, as long as the calyx. Anthers roundish. Germen (see fig. 2, d. and fig. 3.) roundish. Style very short, permanent. Stigma blunt. Silicula (pouch) (fig. 5.) sessile, globose, eggshaped, or oblong, turgid, rugged, veiny, tipped with the style, of 2 cells, and 2 concave, ventricose, scarcely keeled, valves; partition orbicular or oblong, membranous, generally as wide as the valves (see figs. 6 & 7). Seeds (see figs. 6, 7, & 9.) many, not bordered. Cotyledons (fig. 8.) flat, accumbent (0=).

The spreading calyx; simple filaments; nearly entire pouch, with ventricose valves; and numerous, not bordered seeds; will distinguish this from other genera, with accumbent cotyledons, in the same class and order.

Five species British.

† See f. 38, n. †.

COCHLEA'RIA OFFICINA'LIS. Officinal Scurvy-grass. Common Scurvy-grass. Scruby-grass. Spoonwort.

Radical-leaves stalked, roundish heart-shaped, SPEC. CHAR. entire or sinuated. Stem-leaves sessile, egg-shaped, somewhat sinuated. Pouch globose.

Engl. Bot. t. 551. - Hook. Fl. Lond, t. 148. - Wood. Med. Bot. v. i. p. 86. t. 29. -Engl. Bot. V. 151.—1100K. Fl. Lond, t. 146.—WOOd. Mcd. Bot. V. 1. p. 00. t. 29.—Fl. Dan. t. 135.—Linn. Sp. Pl. p. 903.—Hluds. Fl. Angl. (2nd ed.) p. 283.—Willd. Sp. Pl. v. iii, pt. 1. p. 448.—Sm. Fl. Brit. v. ii. p. 688; Engl. Fl. v. iii. p. 175.—With, (7th ed.) v. iii. p. 761.—Lindl. Syn. p. 27.—Hook. Brit. Fl. p. 298.—Macr. Man. Brit. Bot. p. 17.—Bryant's Fl. Diatetica, p. 96.—Lightf. Fl. Scot. v. i. p. 342.—Thornt. Fam. Herb. p. 608, with a figure.—Davies' Welsh Bot. p. 62.—Purt. Midl. Fl. v. ii. p. 738.—Hook. Fl. Scot. p. 195.—Grev. Fl. Edin. p. 140.—Fl. Dev. pp. 109 & 188.—Johnst. Fl. Berw. v. i. p. 142.—Winch's Fl. Northumbl. & Durh.

Fig. 1. a. Calyx; b. a Petal.—Fig. 2. A single Flower; a. a Sepal; b. a Petal; c. Stamens; d. Pistil.—Fig. 3. Stamens and Pistil.—Fig. 4. A single Stamen.—Fig. 5. Pouch.—Fig. 6. Pouch, with one of the valves separated.—Fig. 7. Transverse section of a Pouch.—Fig. 8 A Seed, with the testa removed to show the accumbent cotyledons.—Fig. 9. Seeds.—All, more or less, magnified.

^{*} From cochleare, a spoon; the root-leaves of many of the species assuming the form of a spoon or shell. ‡ See f. 107, n. ‡. § See f. 38, a. | See f. 141, n. ||.

p. 43.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 188.—Loud. Encycl. of Gard. (new edit. 1835.) p. 866. paragr. 4475.—Walker's Fl. Oxf. p. 185.—Lindl. Fl. Med. p. 91.—Perry's Pl. Varvic, Selec, p. 54.—Dick. Fl. Abred. p. 45.—Irv. Lond. Fl. p. 163.—Mack. Catal. Pl. Irel. p. 60; Fl. Hibern. p. 21.—Cochlearia, Ray's Syn. p. 302.—Cochlearia rotundifolia, Johnson's Gerarde, p. 401.—Gray's Nat. Arr. v. ii. p. 695.

Localities.—On the sea-coast, in stony or muddy places, common; sometimes also in watery spots on inland mountains.—Cheshire; Sea-coast below Parkgate: Mr. Bradbuny. Shore of the Mersey: Mr. H. C. Watson, in N. B. G.—Cornwall; Rocks at Polperro, and elsewhere: Mr. E. Foster, jun. Sea-shore; near Castle Treryn: N. B. G.—Cumberland; Among rocks at Cross Fell: Hutchinson.—Derbysh. Mountains round Castleton: D. Turner, Esq. In a small vale below Peveril Castle, and on the Castle walls: Mr. H. C. Watson, in N. B. G. Stony Middleton: Howitt, in N. B. G.—Devon; Topham Marshes; the Hoe, Plymouth; walls at Torquay, and between Teignmouth and Dawlish on the Cliffs: Rev. A. Neck. On the coast; at Biddeford, near the bridge; and on a stone wall between Oakhampton and Liston: B. G. Barnstable: N. B. G.—Dorset; Common on the Cliffs, as well as on the sandy shore: B. G.—Durham; Marsden Rocks; sea-coast, and shores of Tyne, Wear, Tees, &c.; on the wet ground near the Wheysike House, and at Cauldron Snout, Teesdale: N. J. Winch, Esq.—Hants; By the side of Southampton Water, about a mile from the town: N. B. G.—Lancash. On a mountain above Coniston Lake: B. G. Sea-coast and banks of the Mersey: Mr. H. C. Watson. Southport: N. B. G.—Norfolk; Salt-marshes at Yarmouth, and Stokesby: B. G. In Salt-marshes at Caister: 1836, Mr. Manners, in N. B. G.—Northumberland; On rocks and marshy places on the sea-coast, common; shores of Tyne; Fern Islands, abundant; naturalized on rocks at Hornham; wet places near Coal Cleugh: N. B. G.—Notts; In several places on the walls at Woolaton: B. G.—Somersetsh. Chedder Cliffs: B. G.—In Sussex.—Warwicksh. Packington: B. G.—Westmoreland: Kirkston Fell near Ambleside: B. G.—Yorksh. Sea-shore; Ingleborough Hill; very common near rivulets in Craven; Wensley Dale; above Pately Bridge near Ripon; woods near Bolton Abbey; and banks of the Wharf as far down as Ilkey: B. G. Richmond; and Limestone tract near Leeds: N. B. G.—WALES. Anglesey; In muddy ditches on the sea-coast; on the roofs of houses; and old walls

Annual.—Flowers in April and May.

Root fibrous. Stem angular, nearly upright, branched; from 3 inches to a foot high. Lower leaves on long petioles, roundish-heart-shaped, wavy; upper ones sessile, smaller, more oblong, sinuated, or deeply toothed, clasping the stem by their base. Flowers white, in numerous corymbose tufts, which become elongated and racemose as the fruit ripens. Pouch (fig. 5.) nearly globular, obscurely veiny, either not notched at the end, or scarcely sensibly so, tipped with the short style; partition double, broadly eggshaped. Seeds roughish.

Plant smooth, succulent, and of a bright glossy green; varying much in size, according to its situation. Dr. WITHERING has described a singular metamorphosis of this plant in the 7th edition of his Botanical Arrangements, v. iii. p. 762.

The common Scurvy-grass is native on sea-shores throughout the north of Europe. It was once in great report as an antiscorbutic; and is said to be a powerful remedy in the pituitous asthma, and in what Sydenham calls the scorbute rheumatism. A distilled water, and a conserve, are prepared from the leaves, and its juice is prescribed along with that of oranges by the name of anti-scorbutic juices. It may be eaten as a salad.—Cows eat it; horses, goats, and sheep refuse it.

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Myriophyllum werticillatum. Whorled Water - Milfeil 12 Mathem, Del By Danse, Botanie Gardon, Oxford, 1840

MYRIOPHY'LLUM *.

Linnean Class and Order. Monœciat, Polya'ndria.

Natural Order. HALORA'GEE, Dr. R. Brown.—Lindl. Syn. p. 110: Introd. to Nat. Syst. of Bot. p. 57 .- Loud. Hort. Brit. p. 514 .--Don. Gen. Syst. of Gard. and Bot. v. ii. p. 700 .- Mack. Fl. Hibern. p. 112.—Hook. Brit. Fl. (4th ed.) p. 405.—Hygrobier, Rich. by Macgilliv. p. 521.—Naiades, Juss. Gen. Pl. p. 18.—Sm. Gram. of Bot. p. 66 .- QUERNEALES; sect. HIPPURINÆ; Burn. Outl. of Bot. v. ii. pp. 523 & 576 .- INUNDATÆ, Linn.

GEN. CHAR. Flowers monœcious, rarely united. Barren Flowers (fig. 2). Calyx (fig. 1.) inferior, 4-parted. Corolla (see fig. 2.) of 4 inversely egg-shaped, fugitive petals. Filaments (see fig. 2.) 4, 6, or 8, hair-like, flaccid, longer than the calyx. Anthers oblong, vertical. Fertile Flowers (see fig. 4.) below the others. Calyx adhering to the germen (see fig. 4.), with a 4-lobed limb. Corolla none. Styles none. Stigmas (see fig. 4.) 4, downy. Fruit (see figs. 5 & 6.) separable into 4 hard, 1-seeded, indehiscent nuts. Albumen almost absent.

The 4-parted calyx; and the 4-petaled corolla, with 4, 6, or 8 stamens of the sterile flowers; and the 4 stigmas; and 4, 1-seeded, indehiscent nuts of the fertile flowers; will distinguish this from other genera in the same class and order.

Three species British.

MYRIOPHY'LLUM VERTICILLATUM. Whorted Water-Milfoil.

Spec. Char. Leaves finely cut into hair-like opposite segments. Flowers in axillary whorls. Floral-leaves all pinnatifid, much longer than the flowers, and hardly distinguishable from the other leaves.

Engl. Bot. t. 218.—Fl. Dan. t. 1046.—Linn. Sp. Pl. p. 1410.—Huds. Fl. Angl. (2nd ed.) p. 420.—Willd. Sp. Pl. v. iv. pt. 1. p. 407.—Sm. Fl. Brit. v. iii. p. 1022.; Eugl. Fl. v. iv. p. 143.—With. (7th ed.) v. ii. p. 511.—Gray's Nat. Arr. v. ii. p. 557.—Lindl. Syn. p. 110.—Hook. Brit. Fl. p. 406.—Macr. Man. Brit. Bot. p. 80.—Sibth. Fl. Oxon. p. 132.—Abbot's Fl. Bedf. p. 299.—Davies' Welsh Eup. 89.—Relh. Fl. Cant. (3rd ed.) p. 393.—Purt. Mid. Fl. v. iii. p. 69.—Rev. G. E. Smith's Pl. S. Kent, p. 66.—Winch's Fl. Northumbl. and Durh. p. 61.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 703.—Walker's Fl. of Oxf. p. 279.—Perry's Pl. Varvic. Bel. p. 78.—Bab. Fl. Bath. Supp. p. 78.—Irv. Lond. Fl. p. 200.—Mack. Catal. Pl. Irel. p. 82.; Fl. Hibern. p. 112.—Pentapterophyllon aquaticum flosculis ad foliorum nodos, Ray's Syn. p. 316.—Deering's Cat. Stirp. Nott. p. 163.

LOCALITIES.—In ponds and watery ditches; not common.—Oxfordsh. By the bridge on the Botley-road, near the lane going to Medley: Dr. Sibthorp. Ditches near Port Meadow: W. B.—Berks; Ditches near Bray; and near Eton: B. G.—Bedfordsh. Common: Rev. C. Abbot.—Bucks; Ponds and ditches near Eton: B. G.—Cambridgesh. In a ditch on Cambridge Common; Calbbot.—Bucks.—B Coldham Common, by the foot-path to Teversham; Quey: Rev. R. Relhan.—
Cheshire; Stockport Little Moor, in ponds: B. G.—Derbysh. Pond near
Swarkeston Bridge: Rev. A. Bloxam.—Dorset; Boggy ditch, near Wareham:
B. G.—Durham; At Polam: Mr. Backhouse. The limit of its range to the

Figs. 1 & 3. Calyx.-Fig. 2. A Barren Flower.-Fig. 4. A Fertile Flower.-Fig. 5. Fruit.-Fig. 6. A transverse section of the Fruit, which separates into 4 hard nuts .- All, except fig. 5, a little magnified.

^{*} From myrios, Gr. a myriad; and phyllon, Gr. a leaf; in reference to the numerous divisions of the leaves. Don. + See folio 83, note +.

North: N. J. Winch, Esq.—Essex; About Woodford; common: Mr R. Warner. At Broomfield, e.c.: Mag. Nat. Hist.—Hampsh. Ditches communicating with the Avon near Sopley: B. G. Woolmer Forest: Lond. Fl.—Kent; Ditches between Deal and Sandwich: B. G. Plentiful in Romney Marsh: B. G. Ditches of Graveney Marsh, near Faversham: E. Jacob, Esq.-Marsh: B. G. Ditches of Graveney Marsh, ncar Faversham: E. Jacob, Esq.—Lancash. Southport: G. Crosfield, Esq.—Leicestersh. In the Soar near Loughborough, but rare: B. G.—Lincolnsh. Near Boston: B. G.—Middlesex; By where the New River runs under ground at Stoke Newington: and in a little ditch at the W. end of the village: B. G.—Norfolk; At Hedenham; ponds at Lakenham; Caister, and elsewhere near Yarmouth; and ditches adjoining Acle Bridge: B. G. Ditches at Gorleston; Bradwell; Belton, &c.: N. B. G.—Northumberland; At Walker, below Newcastle: R. Bowman, in N. B. G.—Northumberland; Calviek on the opposite side of the river: Dr. Dependent Notts; In the Trent below Colwick on the opposite side of the river: Dr. DEER-Notts; In the Trent below Colwick on the opposite side of the river: Dr. Deering. In a pool in Nottingham Meadows, plentifully: N. B. G.—Skropsh. Forton Moors, near Newport: N. B. G.—Scomersetsh. In the ponds at Lacock: Fl. Bath. Burtle Turf-moor; Middlezoy Sedgmoor: N. B. G.—Staffordsh. Aqualate Mere: N. B. G.—Suffolk; At Bungay; about Bury; Middleton; Wenhaston; Bradwell; and Gorleston: N. B. G.—Surrey; Ditches at Battersea: N. B. G.—Sussex; Lewes and Henfield Levels: N. B. G.—Warwicksh. Ditch near the Avon at Newbold, near Rugby: W. B. Packington: B. G.—In Worcestershire: N. B. G.—Yorksh. Ripon; near Bolton; Potteric Car, near Doncaster; ditches about Beverley; and near Langton, ten miles from Richmond: N. B. G.—WALES. Anglesey; In Cors ddy gai; ditch between Gmeunfynydd and Cors Llechylched: B. G.—SCOTLAND. Orkney Isles; Loch of Airie, Stronsa: N. B. G.—IRELAND. About Limerick; and in Ballyphehane-bog, near Cork: Fl. Hibern.

Perennial.—Flowers in July and August.

An aquatic plant, floating under water. Stem round, smooth, branching, deep green. Leaves finely pinnatifid, smooth, spreading, 4 or 5 in each whorl; those on the flowering part of the stem or branches, which rises 5 or 6 inches above the water, less deeply cut. Flowers small, in whorls, in the axils of the emersed leaves; the upper ones with stamens only; the lowermost less numerous, with pistils only; intermediate ones often with both. Petals greenish. Anthers yellow.

Another species of this genus, Myriophyllum alterniflorum of Decandolle, has been lately added to the British Flora by the Rev. Andrew Bloxam, M. A. of Worcester College, Oxford. This gentleman discovered it first about four years ago, at Whixal Moss, Salop; and again on the 20th of June, 1839, in abundance, in a pond near his own residence at Twycross, Leicestershire.-Mr. C. C. Babington found it in Guernsey in 1838. Mr. BLOXAM has kindly favoured me with specimens of it, from Twycross.

The Natural Order, HALORAGEE, is composed of polypetalous, dicotyledonous herbs or under shrubs, the greater part of which are inhabitants of water and moist places. Their leaves are opposite, alternate, or in whorls. Their flowers axillary, sessile, or in terminal spikes, occasionally monocious or diocious. The calyx tube is adherent to the ovary; and its limb is minute, 4-parted, or almost wanting. The petals are minute, and are inserted into the mouth of the calyx, or wanting. The stamens also arise from the mouth of the calvx, and are either equal in number to its lobes, or double as many, rarely fewer. The ovary adheres inseparably to the calyx, and has one or more cells. The stigmas are sessile, and equal in number to the cells of the ovary. The fruit is dry, and indehiscent; of one or more cells. The seed is solitary, and pendulous; with fleshy albumen; a straight embryo; a superior radicle; and minute cotyledons.—The plants contained in this order are not known to posses any medical properties. The only British genera are Hippuris, t. 49; Myriophyllum, t. 376; and Callitriche.



TY'PHA*.

Linnean Class and Order. MONŒCIA†, TRIA'NDRIA.

Natural Order. Typha'ce.e., Dec.—Lindl. Syn. p. 247; Introd. to Nat. Syst. of Bot. p. 285.—Mack. Fl. Hibern. p. 262.—Typhæ, Juss. Gen. Pl. p. 25.—Sm. Gram. of Bot. p. 67.—Typhinæ, Rich. by Macgilliv. p. 389.—Loud. Hort. Brit. p. 540.—Aroideæ, sect. 3. R. Brown, Prod. 338.—Hook. Brit. Fl. (4th ed.) p. 422.—Juncales; sect. Typhinæ; type, Typhaceæ; Burn. Outl. of Bot. v. i. pp. 403, 404, & 407.—Calamariæ, Linn.

GEN. CHAR. Flowers numerous, monœcious, collected into very dense, soft, cylindrical, terminal spikes or cathins. Sterile Flowers (see figs. 1, 2, & 3.) numerous. Calyx (see figs. 2 & 3.) of 3 imperfect sepals. Corolla none. Anthers (see fig. 2.) 3, more or less drooping, oblong, blunt, furrowed, on one common filament. Fertile Flowers (see figs. 4, 5, & 6.) numerous, in the lower part, continuous or interrupted, of the same cathin. Calyx (see fig. 5.) of several, hair-like bristles, surrounding the stalk of the fruit. Germen (see fig. 6.) superior, stalked, elliptic-oblong. Style hair-like. Stigma simple. Fruit (see fig. 6.) indehiscent, 1-celled, and 1-seeded, crowned with the style, and beset with several hair-like bristles, attached to the base of its stalk.

The cylindrical cathin; the sterile flowers of 3 imperfect sepals, with 3 anthers on one filament; and the fertile flowers of several, hair-like sepals, surrounding the stalk of the fruit; will distinguish this from other genera in the same class and order.

Three species British.

TY'PHA ANGUSTIFO'LIA. Narrow-leaved Reed-mace §. Lesser Cat's-tail.

SPEC. CHAR. Leaves linear, slightly semicylindrical, channelled above. Sterile and fertile Catkins a little distant from each other; both cylindrical.

Engl. Bot. t. 1456.—Curt. Fl. Lond. t. 169.—Linn. Sp. Pl. p. 1377, excl. var. β.—Huds. Fl. Angl. (2nd ed.) p. 400, excl. var. β.—Willd. Sp. Pl. v. iv. pt. 1. p. 198.—Sm. Fl. Brit. v. iii. p. 959.—Engl. Fl. v. iv. p. 72.—With. (7th ed.) v. ii. p. 140.—Gray's Nat. Arr. v. ii. p. 40.—Lindl. Syn. p. 247.—Hook. Brit. Fl. p. 386.—Maer. Man. Brit. Bot. pp. 243 & 244.—Sibth. Fl. Oxon. p. 413.—Abbot's Fl. Bedf. p. 199.—Davies' Welsh Bot. p. 84.—Purt. Midl. Fl. v. ii. p. 438.—Relh. Fl. Cant. (3rd ed.) p. 375.—Hook. Fl. Scot. p. 259.—Rev. G. E. Smith's Pl. S. Kent, p. 60.—Winch's Fl. of Northumbl. and Durh. p. 58.—Walker's Fl. of Oxf. p. 264.—Perry's Pl. Varvic. Sel. p. 74.—Pampl. Pl. of Battersea, p. 15.—Bab. Fl. Bath. Supp. p. 97.—Prim. Fl. Sarn. p. 99.—Irv. Lond. Fl. p. 87.—Cow. Fl. Guide, p. 52.—Typha palustris media, Ray's Syn. p. 436.—Typha palustris clavâ gracili, Bauh. Pin. p. 20.

LOCALITIES.—In ponds, watery ditches, and margins of rivers; rather rare.—Oxfordsh. Cowley, near the London-road: Dr. Sibthore. Ambrosden Fishpond: G. Woodward, Esq.—Berks; At Cumnor, near Oxford, in a large old

Fig. 1. Sterile Catkin.—Figs. 2 & 3. Separate Staminiferous Flowers.—Fig. 4. Fertile Catkin.—Fig. 5. A few Pistiliferous Flowers.—Fig. 6. Germeu, Style, and Stigma.—Figs. 2, 3, 5, & 6, magnified.

^{*} From tiphos, Gr. a bog or marsh; in allusion to the natural situation of these plants.

† See folio 83, note †.

‡ See folio 276, a.

‡ From its resemblace to a mace.

fish-pond, known there by the name of Lady Dudley's Pond, but which is now nearly filled up with moss, &c. and has become nothing more than a bog, plentifully; 1838, W.B.—Bedfordsk. Pools on Knotting-Green: Rev. C. Abbor.—Cambridgsh. Brick-kilns on the Chesterton road; sides of the Cam, below Ditton; Swan Pond, &c.: Rev. R. Relhan. Pools in a brick-field beyond the Observatory; and in a pond nearly opposite the 'Cherry-Tree,' on the road to Oxford: N.B.G.—Cheshire; In a pond by the footpath from New Ferry to Paik-gate, about half way: B.G.—Cornwall; Between Falmouth and Helford: Tour.—Derbysh. Pond between Repton Shrubs and Milton: Rev. A. Bloxam.—Dorset; Ditches communicating with the Stour near Sturminster Newton: B.G.—Durham; In a pond near the Frier's Goose, below Gateshead; in a pond by the road to Nesham from Darlington; and in Corn-Mill Dam, near Team: N.J. Winch, Esq.—Essex; Bog on Epping Forest near Salter's Buildings, Walthamstow; and Marsh ditches by the right-hand side of the Lee Bridge road: B.G. Sandon and Banbury: M.N.H.—Kent; In the middle of Woolwich Common; and in Romney Marsh: B.G. In dykes, abundant: Rev. J. E. Smith. In the water near the mill in Buckhurst Park: Fl. Ton. In the ditches at Ewell and Nagden, near Faversham: E Jacon, Esq.—Leicestersh. In the Soar near Leicester, and many other parts of the river: B.G.—Middlesex; About London: Sir W. J. Hooker.—Norfolk; Between Norwich and Hinglam; and about Bungay. Common round Yarmouth: B.G. Abounds in a clay-pit adjoining the Vicarage garden, and is frequently mixed with T. latifolia in other places about Stow: N. B. G.—Notts; Wollaton; Bulwell; between Bulwell and Popplewick; near Eastwood; and King's Meadows, near Nottingham: N. B. G.—Shropsh. Berrington Pool; and Bomere Pool: N. B. G.—Sometsetsh. Ditches at Burnham and Wembdon, not uncommon: N. B. G. In one of the Locks at Combe Bay; and in the Canal at Chippenham: Fl. Bath.—Suffolk; Great Welnetham; Culford near Bury; pits of water about Swefling. Glemham, &c. Clay-pits near Bungay; Yoxl

Perennial.-Flowers in June and July.

Root ereeping, thick, and whitish, with many fibres. Herb smooth. Stem from 3 to 5 feet high, upright, round, solid, perfectly straight and simple, without joint or knot, leafy at the bottom only. Leaves several, sheathing at the base, upright, from 2 to 3 feet or more long, and a quarter of an inch wide, semicylindrical below, flat, and strap-shaped towards the end. Spikes or Cathins terminal, slender, with a smooth naked portion of the stem, from half an inch to an inch, between the sterile and fertile ones. Common receptacle of both rather scaly.

A variety, with leaves nearly half an inch broad, occurs on the margin of the River Cherwell, between Oxford and Marston, and also by the side of the River Isis, between Sandford and Nuncham; and I have observed the same variety, growing with *T. latifolia*, in an old marl-pit, on Mr. Robins' farm, near Rugby, Warwickshire.

The down of the fertile catkins, both of this and of T. latifolia, has been used to stuff cushions and mattresses. The pollen is inflammable, and is often substituted for the pollen-like dust of the Lycopodia in pyrotechnic exhibitions. It also forms a stimulating application serviceable in the cure of indolent sores. The leaves are put by coopers between the staves of their easks to prevent leakage; they are also made into mats, or coarse chair-bottoms, and form good thatch. In Germany the young roots are eaten in salads. The fertile catkins matured form curious and beautiful objects. See Burn. Outl. and With. Bot. Arr.

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NE'PETA*.

Linnean Class and Order. DIDYNA'MIA +, GYMNOSPE'RMIA +.

Natural Order. Labia'tæ §, Juss. Gen. Pl. p. 110.—Sm. Gram. of Bot. p. 99.; Engl. Fl. v. iii. p. 63.—Bentham, in Bot. Regist. (1829).—Lindl. Syn. p. 196.; Introd. 10 Nat. Syst. of Bot. p. 239.—Rich. by Macgilliv. p. 439.—Loud. Hort. Brit. p. 528.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 665.—Mack. Fl. Ilibern. p. 209.—Verticillatæ of Linnæus.—Syringales; subord. Primulosæ; sect. Menthinæ; type, Menthaceæ of Labiatæ; subtype, Saturidæ; Burn. Outl. of Bot. v. ii. pp. 900, 958, 968, & 972.

GEN. CHAR. Calyx (fig. 1.) inferior, tubular, cylindrical, with several ribs, and 5 pointed, rather unequal, direct, marginal teeth. Corolla (see fig. 2, b.) ringent; tube cylindrical, slender, incurved, dilated at the throat, which is bordered, at each side, with a narrow, reflexed lobe; upper lip upright, roundish, slightly cloven; lower lip rounded, concave, large, undivided, numerously notched. Filaments 4, didynamous, awl-shaped, near together, covered by the upper lip. Anthers incumbent. Germen superior, small, 4-cleft. Style thread-shaped, of the length and situation of the stamens. Stigma cloven, pointed. Seeds 4, nearly egg-shaped, even, in the bottom of the dry permanent calyx (see fig. 3). The lateral lobes of the lower lip of the corolla are transferred to the margin of the tube.

The nearly regular, 5-toothed calyx; the corolla with the lower lip numerously notched, and the throat bordered and reflexed at each side; will distinguish this from other genera in the same class and order.

One species British.

NE'PETA CATΛ'RIA. Common Cat-mint. Nep.

SPEC. CHAR. Leaves finely downy, heart-shaped, stalked, with tooth-like serratures. Flowers in spiked, somewhat pedunculated whorls.

Engl. Bot. t. 137.—Fl. Dan. t. 580.—Linn. Sp. Pl. p. 796.—Huds. Fl. Angl. (2nd edit.) p. 249.—Willd. Sp. Pl. v. iii. pt. 1. p. 49.—Sm. Fl. Brit. v. ii. p. 608.; Engl. Fl. v. iii. p. 70.—With. (7th ed.) v. iii. p. 695.—Lindl. Syn. p. 203.; 2nd ed. p. 202.—Hook. Brit. Fl. p. 278.—Macr. Man. Brit. Bot. p. 183.—Lightf. Fl. Scot. v. i. p. 304.—Sibth. Fl. Oxon. p. 181.—Abbot's Fl. Bedf. p. 126.—Davies' Welsh Bot. p. 56.—Purt. Midl. Fl. v. i. p. 279.—Relh. Fl. Cant. (3rd ed.) p. 232.—Hook. Fl. Scot. p. 180.—Fl. Devon. pp. 96 & 144.—Johnst. Fl. Berw. v. ii. p. 282.—Winch's Fl. of Northumb. and Durl. p. 38.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 806.—Pamplin's Indig. Plants of Battersea and Clapham, p. 10.—Walker's Fl. of Oxf. p. 161.—Perry's Pl. Varvic. Sel. p. 48.—Bab. Fl. Bath. p. 40.; Supp. p. 87.; Prim. Fl. Sarn. p. 73.∥—Irv. Lond. Fl. p. 134.—Luxf. Reig. Fl. p. 52.—Cow. Fl. Guide, p. 39.—Mack. Catal. Pl. of Ircl. p. 54; Fl. Hibern. p. 217.—Nepeta

Fig. 1. Calyx,—Fig. 2. A separate Flower; a. the Calyx; b. the Corolla,—Fig. 3. A matured Calyx containing the Seeds.

^{*} From nepa, a scorpion; it being reputed efficacious against the bite of that reptile. Lineaus derives it from Nepet, a city of Tuscany.

† See folio 31, uote †. ‡ See folio 31, note ‡. § See folio 94, a.

[†] See folio 31, uote †. ‡ See folio 31, uote ‡. § See folio 94, a. ¶ "Primitiæ Floræ Sarnicæ; or, An Outline of the Flora of the Channel Islands of Jersey, Guernsey, Alderney, and Serk. Containing a Catalogue of the Plants indigenous to the islands: with occasional observations upon their distinctive Characters, Admitties, and Nomenclature. By Charles C. Barington, M. A. F. L. S. F. G. S., &c. &c. Londou, 1839." 12mo. pp. 132.

mollis, Salisb. Prod. p. 78.—Gray's Nat. Arr. v. ii. p. 371.—Nepeta major vulgaris, Ray's Syn. p. 237.—Mentha felina, seu Cattaria, Johnson's Gerarde, p. 682.

LOCALITIES.—On hedge-banks, by road sides, and in waste places, especially in a chalky or gravelly soil. Not uncommon in ENGLAND; more rare in SCOT-LAND, and IRELAND.

Perennial.-Flowers in July and August.

Root tapering, very fibrous. Stems 2 or 3 feet high, upright, branched, 4-angled, leafy, clothed, like every other part of the plant, with hoary pubescence. Leaves opposite, on longish petioles, heart-shaped, pointed, deeply crenated, green above, paler and more downy beneath. Flowers numerous, in compound, stalked whorls, which are crowded into spikes, and mostly turned to one side of the stem. Bracteas searcely longer than the pedicels. Calyx egg-shaped, furrowed, pubescent, a little incurved, with an oblique mouth, and spear-shaped, somewhat spreading teeth. Corolla about one half longer than the calyx, white, the lower lip flesh-coloured, spotted with crimson. Stamens rather longer than the upper lip. Anthers reddish. Seeds egg-shaped, 3-sided, blunt at both ends, crowned with a white streak, smooth, dark brown when ripe.

This plant is a native almost throughout the whole of Europe, and Middle Asia, on walls, in hcdges, and waste places. It has a strong aromatic scent, between mint and pennyroyal. Cats are extremely fond of it, especially when it is withered, they will then roll themselves on it, tear it to pieces, and ehew it with great pleasure. RAY observes, that plants which he transplanted from the fields into his garden were always destroyed by cats, unless he protected them with thorns till they had taken root and come into flower, but that they never meddled with plants raised from seed. Hence arose the old English proverb expressed in the doggrel lines:

" If you set it the cats will eat it; But if you sow it the cats won't know it."

Mr. Miller, in his "Gardener's Dictionary," says he frequently made trial of this, and always found it true. He transplanted one of the plants from another part of the garden, within two feet of some plants which came up from seeds; the latter remained unhurt, while the former were torn to pieces and destroyed by the eats. On this account it can only be preserved in gardens by sowing the seed, for, by the handling in the process of transplanting, or in the languid state subsequent to it, the peculiar scent is exhaled, and the eats are attracted to the plant, which otherwise they are unable to discover.

An infusion of Cat-mint is deemed a specific in chlorotic eases. Two ounces of the expressed juice may be given for a dose. Sheep are said to eat it; but all other domestic animals are said to refuse it. See Miller's Gard. Dict. and Johnston's Fl. Berw.

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The Part of the Control of the Control

Charles Daniel



Luzula Campestris. Field Wood-rush. U Mathons, Del. & Sc. Fub! by W. Basto, Botanic Gordon, Orfo-d 1840.

LU'ZULA*.

HEXA'NDRIAT, MONOGY'NIA. Linnean Class and Order. Natural Order. Ju'NCE E, Decand .- Lindl. Syn. p. 273.; Intr. to Nat. Syst. of Bot. p. 270.—Rich. by Macgilliv. p. 397.—Loud. Hort. Brit. p. 541.—Mack. Fl. Hibern. p. 289.—Hook. Brit. Fl. (4th edit.) p. 424.—Junci, Juss. Gen. Pl. p. 43.—Sm. Gram. of Bot. p. 72.—Juncales; sect. Juncinæ; type, Juncaceæ; Burn. Outl. of Bot. v. i. pp. 403 & 416 .- TRIPETALOIDEE, Linn.

GEN. CHAR. Calyx (see fig. 1.) inferior, of 6 oblong, pointed, permanent, gluniaccous sepals; 3 of them internal, and rather smaller than the other 3. Corolla none. Filaments (see fig. 1.) 6, hair-like, very short, attached to the base of the sepals. Anthers (see fig. 1.) oblong, upright, of 2 cells, busting lengthwise. Germen (see fig. 2.) superior, triangular, of 1 cell, with rudiments of 3 seeds only. Style (see fig. 2.) simple, thread-shaped, deciduous. Stigmas (see fig. 2.) 3, tapering, downy, as long as the style, or longer. Capsule (figs 3 & 4.) egg-shaped, triangular, smooth, subtended by the permanent calyx, of 1 cell, and 3 rather horny valves, without dissepiments. Seeds (see figs. 4, 5, & 6.) 3, at the bottom of the cell, upright, roundish, with a tumid crest, various in shape and position. (Leaves flat, generally hairy.)

The calyx of 6 sepals; and the 1-celled, 3-valved, 3-seeded capsule; will distinguish this from other genera, without a corolla,

in the same class and order.

Seven species British.

LU'ZULA CAMPE'STRIS. Field Wood-rush. Small hairy Wood-grass.

Spec. Char. Leaves flat, hairy. Panicle of 3 or 4 egg-shaped, dense, partly stalked, clusters. Capsule inversely egg-shaped, ob-

tuse, with a small point, shorter than the calyx.

tuse, with a small point, shorter than the calyx.

Luzua Campestris. Bicheno in Tr. of Linn. Soc. v. xii. p. 334. t. 9. f. 4. excl. var. β.—Gray's Nat. Arr. v. ii. p. 169.—Lindl. Syn. p. 276.—Hook. Brit. Fl. p. 166. excl. var. β.—Maer. Man. Brit. Bot. p. 242. excl. var. β.—Hook. Fl. Scot. p. 110. excl. var. β.—Grev. Fl. Edin. p. 81. excl. var. β.—Fl. Devon. pp. 63 and 129. excl. var. β.—Bab. Fl. Bath. p. 52.—Diek. Fl. Abred. p. 34.—Irv. Lond. Fl. p. 104.—Luxf. Reig. Fl. p. 31.—Cow. Fl. Guide. p. 57.—Maek. Fl. Hibern. p. 293. excl. var. β.—Luciola campestris, Sm. Engl. Fl. v. ii. p. 181.—With. (7th ed.) v. ii. p. 448.—Johnst. Fl. of Berw. v. i. p. 81.—Winch's Fl. of Northumb. and Durll. p. 23.—Walker's Fl. of Oxf. p. 100.—Maek. Cat. Fl. Irel. p. 34.—Juncus campestris, Linn. Sp. Pl. p. 468, a.—Huds. Fl. Angl. (2nd edit.) p. 152. excl. var. β.—Engl. Bot. t. 672.—Curt. Lond. Fl. t. 140.—Willd. Sp. Fl. v. ii. p. 1, p. 221.—Sm. Fl. Brit. v. i. p. 385, a.—With. (5th edit.) v. ii. p. 436.—Lightf. Fl. Scot. v. i. p. 186.—Sibth. Fl. Oxon. p. 116, α.—Abbot's Fl. Bedf. p. 80.—Davies' Welsh Bot. p. 35.—Leers' Fl. Herborn. p. 91. t. 13. f. 5.—Purt. Midl. Fl. v. i. p. 178.—Relh. Fl. Cant. (3rd edit.) p. 145.—Juncoides villosum, capitulis psyllii. Scheuchz. Agr. p. 310.—Gramen exile hirsutum, Ray's Syn. p. 416.—Johnson's Gerarde, p. 17. Gerarde, p. 17.

Localities .- In dry pastures, meadows, and on heaths; common.

Fig. 1. A single Flower.-Fig. 2. Germen, Style, and Stigmas.-Fig. 3. Capsule.-Fig. 4. The same, with the valves separated.—Figs. 5 & 6. A Seed.—All, except

fig. 1., more or less magnified.

* The Gramen Luzulæ of Bauhis. Luzula, Smith tells us, is altered from lucciola or luzziola, a glow-worm; because the heads of flowers, wet with dew, and sparkling by moon-light, gave the elegant Italians an idea of those brilliant insects. HOOKER. † See folio 33, note +.

Perennial.—Flowers in April and May.

Root creeping, tough, somewhat woody, with numerous blackish fibres. Culms solitary, from 3 or 4, to 10 inches high, upright, simple, straight, nearly round, leafy. Leaves strap-shaped, flat, 5-nerved, dark green, often of a reddish-brown colour at their summits, with long silky hairs on their margins, and especially at the top of the sheaths. Spikes or Clusters 3 or 4, one of which is nearly sessile, the rest on simple peduncles, either upright or drooping; each cluster egg-shaped, or roundish, of from 4 to 6 or 8 crowded, nearly sessile flowers, with several, small, membranous, fringed, shining, silvery bracteas at the base of each flower. Calyxleaves (sepals) egg-spear-shaped, pointed, dark brown, shining, with a stout ribbed keel, and pale membranous margin. Filaments very short. Capsule 3-sided, roundish, considerably shorter than the calyx, pale brown, very blunt at the extremity, with a small point. Seeds kidney-shaped, olive coloured, with a white appendage, or crest, by which it is attached to the receptacle.

The marginal hairs of this, and the other species of the genus, are singularly constructed; being composed of a number of smaller fibres, which are jointed and twisted, so that by applying moisture, or breathing upon them, when dry, they untwist themselves.

Luzula congesta of DE CANDOLLE, which is found in boggy situations, is considered by many Botanists as only a variety of L. campestris. It differs in having a taller culm, longer leaves, and a panicle composed either of many heads clustered into one, or several little egg-shaped heads of flowers standing on long peduncles in somewhat of an umbellate form. It also flowers a month later than L. campestris. This is not uncommon about Oxford. It is well figured in Mr. Purton's Midland Flora, v. iii. p. 352. t. 9.

The Natural Order, Junce, is composed of herbaceous plants, with fascicled or fibrous roots; fistular, or flat and channelled leaves, with parallel veins; an often more or less capitate inflorescence; and generally brown or green flowers. Their perianth is inferior, 6-parted, and more or less glumaceous; their stamens are 6 in number, and are inserted into the base of the segments of the perianth; sometimes they are only 3, and then they are opposite the outer segments. The ovary is 1- or 3-celled, and 1- or many-seeded, or 1-celled and 3-seeded. The style is simple, with usually 3 stigmas, but sometimes only 1. The fruit is capsular, with 3 valves, bearing the dissepiment in their middle, rarely destitute of valves, and 1-seeded by abortion. Embryo cylindrical, at the base of a hard fleshy or cartilaginous albumen.—The only British genera in this order, are, 1. Juncus; 2. Luzula; and 3. Narthesium.

They are, for the most part, inconspicuous, rigid plants, of very little use. Some species of Juncus are employed for making the bottoms of chairs, &c.; and the pith for the wick of common candles; and Juncus effusus is cultivated in Japan for making floor-mats.

See Herry



Tilloca muscosa. Moßey Tillaa. ©
Melsell Del. Put dry W. Barrer Botanie Gardon, Orford 1840. Mathema Sc

TILLÆ'A*.

Linnean Class and Order. TRI-TETRA'NDRIA†, TRI-TETRA-GY'NIA.

Natural Order. Crassula'Ceæ‡, De Cand.—Lindl. Syn. p. 63; Introd. to Nat. Syst. of Bot. p. 161.—Rich. by Macgilliv. p. 514.—Loud. Hort. Brit. p. 516.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 97.—Mack. Fl. Hibern. p. 59.—Cra'ssulæ, Juss. Dict. des. Sc. Nat. v. xi. p. 369.—Succule'ntæ, Linn.—Vent. Tabl. v. iii. p. 271.—Sempervivæ, Juss. Gen. Pl. p. 307.—Sm. Gram. of Bot. p. 162.—Rosales; sect. Crassulinæ; type, Crassulaceæ; Burn. Outl. of Bot. v. iii. pp. 614, 730, & 735.

GEN. CHAR. Calyx (see fig. 3.) inferior, of 3 or 4 deep, spreading, egg-shaped, succulent segments. Corolla (see fig. 3) of 3 or 4, egg-shaped or spear-shaped, pointed, flat, thin petals, which are rather smaller than the calyx, and alternate with its segments. Nectaries or Scales none, or very small. Filaments (see fig. 3.) 3 or 4, simple, awl-shaped, upright, shorter than the corolla. Anthers roundish, of 2 cells. Germens (see fig. 3.) 3 or 4, egg-shaped, superior. Styles terminal, very short. Stigmas blunt. Capsules (fig. 4.) 3 or 4, oblong, pointed, recurved, somewhat constricted in the middle, bursting lengthwise at their upper edge, each of 1 cell and 2 valves. Seeds (figs. 5 & 6.) egg-shaped, 2 in each capsule.

The 3- or 4-parted calyx; the corolla of 3 or 4 oblong, pointed, petals; and the 3 or 4 capsules, each somewhat constricted in the middle, and 2-seeded; will distinguish this from other genera in the same class and order.

One species British.

TILLÆ'A MUSCO'SA. Mossy Tillæa. Mossy Red-Shanks.

SPEC. CHAR. Stems branched and decumbent at the base. Flowers axillary, sessile, mostly 3-cleft.

Engl. Bot. t. 116.—De Cand. Pl. Grass. t. 72.—Linn. Sp. Pl. p. 186.—Rose's Elem. App. p. 448. t. 2. f. 2. — Huds. Fl. Angl. (2nd ed.) p. 73.—Willd. Sp. Pl. v. i. pt. 1. p. 721.—Sm. Fl. Brit. v. i. p. 201.; Engl. Fl. v. i. p. 242.—With. (7th edit.) v. ii. p. 209.—Gray's Nat. Arr. v. ii. p. 539.—Lindl. Syn. p. 63.—Hook. Brit. Fl. p. 78.—Macr. Man. Brit. Bot. p. 87.—Doris Gen. Syst. of Gard. and Bot. v. p. 98.—Irv. Lond. Fl. p. 226.—Bab. Prim. Fl. Sarn. p. 40.—Tillea muscosa, annua, perfoliata, flore albo, Mich. Gen. p. 22. t. 20.—Sempervivum omnium minimum, repens, muscosum, polygoni facei, Bocc. Mus. v. ii. p. 36. t. 22.—Polygonum muscosum minimum, Bocc. Sic. p. 56. t. 29.

Fig. 1. Two of the Leaves.—Fig. 2. Flowers.—Fig. 3. A separate Flower, showing the ealyx, the eorolla, the stamens, and the pistils.—Fig. 4. Capsules.—Figs. 5 and 6. Seeds.—All, except figs. 2 and 5, magnified.

^{*} So named in honour of MICHAEL ANGELO TILLI, M. D. F. R. S., born 1653, Professor of Botany at Pisa; author of *Horti Pisani Catalogus*, 1723, fol. with 50 plates. It contains a few rare plants, observed by him in his voyages to Constantinople and Tunis. Martyn.

⁺ See folio 45, note +.

Localities.—On the most barren sandy heaths; rare.—Middlesex; On gravel-walks near London: Hook. Brit. Fl.—Norfolk; On Drayton, Cowston, and Mousehold Heaths: Sir. J. E. Smith. Yarmouth Denes, especially about the Whale's Jaw Bones: Mr. Wiog. On Dersington Heath: Rev. R. Relhan. St. Faith's Bogs; the driest spots on S. Denes; and on Lound Heath, not nneommon: N. B. G. A troublesome weed on the gravel-walks at Holkham: Sir. J. E. Smith.—Swfolk; On Brendon Heath: Sir J. E. Smith. About Bungay, in various places: Mr. Woodward. West Stow, Icklingham, Cavenham, and Nacton Heaths: Sir T. G. Cullum. Westleton, and Dunwich Heaths; gravel-walks at Mr. Maynard's, of Hoxne, &e.: Mr. Davy. Belton, and Gorleston Heaths: Mr. Wigg. Haslewood Common; and frequent about Aldborough: Rev. G. Crabbe. Aldeby Common: Mr. F. Turner.

Annual.—Flowers from May to October.

Root small, fibrous. Stems numerous, at first nearly upright, but soon becoming procumbent, an inch or two in length, thread-shaped, round, smooth, jointed, leafy, generally red. Leaves (see fig. 1.) opposite, very succulent, reddish, smooth, oblong, blunt, combined at the base, sometimes as long, sometimes half as long as the intermediate space between one joint and another. Flowers generally solitary, axillary (see fig. 2.), often accompanied by a pair of smaller leaves. Calyx mostly in 3, egg-shaped, bristle-pointed segments. Corolla white, with a tinge of red, usually of 3, narrow, pointed petals, smaller than the calyx. Stamens and Pistils shorter than the corolla. Capsules 3, oblong, pointed. Seeds, 2 in each capsule. Whole plant smooth.

The flowers in this species are almost always 3-cleft, and triandrous; but they are sometimes 4-cleft in strong plants; and GÆTNER says 5-cleft.

It is a native of Europe in many places, and was first determined in England by the Rev. Mr. BRYANT, in 1766.

The whole plant is so small and depressed, that it only becomes remarkable by the ample reddish patches which it forms over the most dreary sands, a proof that even these apparently barren places are not always unprofitable to the Botanist. "Their loose and fluctuating surface being arrested for awhile, and destined to afford support to a tribe of plants, the constitution of which is fitted by the all-wise Creator to thrive best on the meagre nourishment they afford. Thus some of the vast African deserts are turned to account by means of Mesembryanthemums, Cotyledons, and other succulent vegetables. We have here a production nearly allied to the Cotyledons, which flourishes on the driest sandy heaths, where few others would live, and at a season when Mosses and Lichens are dried up;"* thus verifying the following lines of the poet:

"There's not a heath, however rude,
But hath some little flower,
To brighten up its solitude,
And scent the evening hour."



14,





OROBA'NCHE *.

Linnean Class and Order. DIDYNA'MIA†, ANGIOSPE'RMIA‡.

Natural Order. OROBA'NCHEE, Juss.—Lindl. Syn. p. 193.;
Introd. to Nat. Syst. of Bot. p. 227.—Rich. by Macgilliv. p. 433.—
Loud. Hort. Brit. p. 529.—Don's Gen. Syst. of Gard. and Bot. v. iv.
p. 627.—Mack. Fl. Hibern. p. 205.—Hook. Brit. Fl. (4th edit.) p.
414.—Akin to Pediculares, Juss. Gen. Pl. pp. 99 & 101.—Sm.
Gram. of Bot. p. 96.—Syringales; subord. Primulosæ; sect.
Menthinæ; type, Orobanchaceæ; Burn. Outl. of Bot. v. ii.

pp. 900, 958, & 960.—Personatæ, Linn.

GEN. CHAR. Calyx (see fig. 1.) inferior, of 2 lateral, opposite, pointed, coloured, undivided or cloven, permanent sepals; with from 1 to 3 bracteas. Corolla (fig. 2.) tubular, ringent, withering; tube egg-shaped, curved, finally membranous; upper lip concave, notched, more or less dilated and spreading at the margin; lower lip reflexed, in 3, somewhat unequal, wavy lobes. Nectary a gland under the germen. Filaments (figs. 3 & 4.) 4, didynamous, from the base of the corolla, almost as long as the tube, awl-shaped, flattened and somewhat dilated downwards, variously and partially downy and glandular. Anthers incumbent, of 2 lobes, rounded at the top, pointed below. Germen egg-oblong. Style (see fig. 5.) terminal, cylindrical, incurved, as long as the stamens. Stigma large, deflexed, of 2 or 3 globular lobes. Capsule (see figs. 5 & 6.) egg-shaped, pointed, of 1 cell, and 2 valves, with 2 longitudinal placentas (receptacles) proceeding from the middle part of each Seeds very numerous, minute, wrinkled, covering the valve. placentas.

The calyx of 2 lateral, often combined and bifid segments, with from 1 to 3 bracteas; the 4- or 5-cleft, ringent corolla; the gland at the base of the germen; and the 1-celled, 2-valved capsule, with 4 parietal, longitudinal placentas; will distinguish this from other

genera in the same class and order.

Seven species British.

OROBA'NCHE MINOR. Lesser Brome-rape.

SPEC. CHAR. Stem simple. Corolla nearly cylindrical, lower lip with curled segments, the middle one largest and lobed. Stamens

fringed. Style smooth.

Engl. Bot. t. 422.—Sutton, in Tr. of Linn. Soc. v. iv. p. 179.—Sm. Fl. Brit. v. ii. p. 670.—Willd. Sp. Fl. v. iii. pt. t. p. 350.—Sm. Engl. Fl. v. iii. p. 148.—With. (7th ed.) v. iii. p. 744.—Gray's Nat. Arr. v. ii. p. 314.—Lindl. Syn. p. 194.—Hook. Brit. Ft. p. 292.—Macr. Man. Brit. Bot. p. 175.—Purt. Midl. Fl. v. iii. p. 55.—Rev. G. E. Smith's Pl. of S. Kent, p. 36.—Fl. Devon. pp. 107 & 149.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 629.—Walker's Fl. of Oxf. p. 182.—Bab. Fl. Bath. p.

Fig. 1. Bractea, Calyx, and Corolla.—Fig. 2. Corolla.—Fig. 3. Stamens.—Fig. 4. A separate Stamen, slightly magnified.—Figs. 5 & 6. Unripe Capsules.—The figure on the right of the latter is part of a plant of *Trifolium pratense*, to which the *Orobanche* was attached.

[•] From orobos, Gr. a laguminose or pea-like plant; and ancho, Gr. to strangle (4. a. Strangle Tare); from its supposed power of destroying the plant on which it grows. WITHERING.

† See folio 31, note †.

† See folio 72, note ‡.

35; Supp. p. 85.; Prim. Fl. Sarn. p. 66.—Irv. Lond. Fl. p. 127.—Luxf. Reig. Fl. p. 56.—Mack. Cat Pl. Irel. p. 59.; Fl. Hibern. p. 206.—Orobdinche major, Læfl. It. Hisp. p. 151.—O. barbata, Lam. Dict. v. iv. p. 621.—O. ramosa, β. Huds. Fl. Angl. (2nded.) p. 266.—O. Afore minore, Dill. in Ray's Syn. p. *288.—Baul.

Hist. v. ii. p. 781.

Localities.—In fields and pastures, growing from the roots of Trifolium pratense, plentifol in some parts of Britain.—Oxfordshire; Woods about Ewelme; 1823: Rev. Dr. Lloyd, Lord Bishop of Oxford. Above Headington-Wick Copse: Rev. R. Walker, in Oxf. Fl.—Berks; In a clover field near Buckland; Nev. 1831: Mr. John Reddy.—Cornwall; About the Lizard: N. B. G.—Devon; Fields about Alphington and Shillingtord; fields at Kenton: Fl Dev. Covering a field near Matford on the Starcross road about half a mile from Alphington church: Rev. H. T. Ellaconde.—Dorset; Among vetches and clover in Pinneen field near Blandford: B. G.—Gloucestersh. St. Vincent's Rocks; Weston in Gordano: N. B. G.—Hants; Near Bonchurch, Isle of Wight: H. Woollcome, Esq. Ch. Ch.—Kent; Found by Mr. Rand, in a field of oats two miles beyond Rochester, on the left hand going towards Horn's Place: Dill. in Ray's Syn. In a sand-pit at Charlton; and under the Cliffs E. of Dover: B. G. In Eastwear Bay; and upon the Sand-hills, Deal: S. K.—Norfolk; Clover-fields and pastures at Sheringham, Weyborn, Eaton, and Fiettenham: Rev. C. Sctton. Bunham; and near Norwich: N. B. G.—Somersetsh. Near the Sham ruin on Combe Down, and not uncommon in clover-fields. Clover-fields at Rudloe and Box; Woolley: Fl. Bath.—Suffolk; Plentifully among clover at Raydon Cottage, Orford: B. G. Bungay: N. B. G.—Surrey; Near Croydon, Leatherhead, Wandsworth, Coulsdon, Betchworth, and in clover-field at Brockham: N. B. G. In the greatest abundance in a large clover-fields: W. Borner, Esq.—Wilts; Frequent in old clover-fields: N. B. G.—Yorksh. Dunkirk Wood near Sleningford; near Nunwick by Ripon: B. G.—Walles. Brecon; Clover-fields near Crickhowel: B. G.—Caernarvonsh. Conway Castle; Diganwy Castle: N. B. G.—Mommouthsh. Near Abergavenny: N. B. G.—Pembrokesh. Tenhy: B. G.—HRELAND. Hill of Howth, South side, on steep banks near the sea; in Sir Robert Statle's woods, Queen's County; on the ruins of Aucruss Abbey. Killarney; South Isles of Arran; and plentitul in Palmerston Woods, and Leixlip, a

Perennial?—Flowers in July and August.

Root fibrous, usually adhering to the woody root of Trifolium pratense (t. 283). Stem thickened at the base, from 6 to 12 inches high, upright, simple, often wavy, roundish, hairy, almost the thickness of a goose-quill, flesh-coloured, or sometimes yellow, moderately scaly. Flowers in spikes, pale yellow with purplish veins, hairy, sometimes of a full yellow. Bracteas solitary, simple, spearshaped, hairy, almost as long as the flowers. Calyx-leaves (sepals) sometimes simple, and sometimes divided. Corolla not at all tumid; upper lip rounded and crenulated; lower lip 3-cleft, with equal, rounded, crenulated lobes. Stamens thickly fringed in their lower part. Germen and Style smooth. Stigma purple.

The whole plant is generally of a purplish cast, though occasionally it is of an uniform pale yellow, always turning brown and dry in decay. All the species are parasitical, and are probably much alike in quality, viz. astringent and vulnerary. Wherever they abound they must be treated by the Agriculturist as the most destructive weeds, which will fatally impoverish any other crop.

The Natural Order Order Order onsists of dicotyledonous, herbaceous, dingy-coloured, somewhat succulent, leafless plants, which are glandular and scaly, and generally growing parasitically on the roots of other plants. The calyx is inferior, variously divided, and permanent. The corolla is monopetalous, irregular, permanent, and imbricated in the bud. The stamens are 4 in number, and didynamous. The ovary is superior, in a fleshy disk, 1-celled, with 2 or 4 parietal, many-seeded receptacles. The style is simple, with a 2-lobed stigma. The capsule is 2-valved. The seeds are indefinite, and very minute; with the embryo at the apex of a fleshy albumen.

The only British genera of this order are, Orobanche, t. 381; and Lathrea,

t. 365.





Mathews, Del &Sc.

Pubdey "Baxter Botanic Garden Oxford 1845.

FRA'XINUS*.

Linnean Class and Order. DIA'NDRIA +, MONOGY'NIA.

Natural Order. OLEA'CEE‡, Lindl. Intr. to Nat. Syst. of Bot. p. 224.—Loud.Arb. et Frut. Brit. p. 1197.—OLEINEE, Hoffmansegg and Link.—Lind. Syn. p. 171 —Mack. Fl. Hib. p. 178.—OLE'INÆ, Loud. Hort. Brit. p. 524.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 43.—Jasmineæ, Juss. Gen. Pl. p. 104.—Sm. Gr. of Bot. p. 97.—Rich. by Macgill. p. 437.—Hook. Br. Fl. (4th ed.) p. 412.—Syringales; subord. Primulose; sect. Primulinæ; type, Oleaceæ; Burn. Outl. of Bot. pp. 900, 958, & 1020.—Sepiarie, Linn.

GEN. CHAR. Calyx none, or 4-parted, or 4-toothed. Corolla none, or of 4 petals. Filaments (see figs. 1 & 2.) 2, short, between the segments, opposite. Anthers (see fig. 2.) large, with 4 furrows. Germen (see figs. 1 & 3.) superior, egg-shaped, of 2 cells, with rudiments of 2 pendulous seeds. Style (see fig. 1.) short. Stigma cloven. Capsule or Samara (figs. 4 & 5.) 2-celled, compressed, winged at top; cells 1-seeded. Seeds (see figs. 5 & 6.) compressed, pendulous. (Flowers sometimes without stamens.)

The obsolete, or 4-petalled, corolla; the compressed, mostly 2-celled, and 2-seeded capsule; and the absence of stamens in some of the flowers; will distinguish this from other genera in the same class and order.

Two species British.

FRA'XINUS EXCELSIOR. The taller Ash. Common Ash.

SPEC. CHAR. Leaves pinnated; leaflets egg-spear-shaped, pointed, serrated. Flowers without either calyx or corolla.

Engl. Bot. t. 1692.—Fl. Dan. t. 969.—Hunt. Evel. Silva, p. 150, with a plate.—Loud. Arb. et Frut. Brit. p. 1214. t. 156, a.; t. 156, b.; & t. 157.—Linu. Sp. Pl. p. 1509.—Huds. Fl. Angl. (2nd ed.) p. 446.—Willd. Sp. Pl. v. iv. pt. 11. p. 1099.—Sm. Fl. Brit. v. i. p. 13.; Engl. Fl. v. i. p. 14.—With. (7th ed.) v. ii. p. 79.—Gray's Nat. Arr. v. ii. p. 392.—Lindl Syn. p. 171.—Hlook. Brit. Fl. p. 11.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 53.—Maer. Man. Brit. Bot. p. 155.—Lightf. Fl. Seot. v. ii. p. 641.—Sibth. Fl. Oxon. p. 18.—Abbot's Fl. Bedf. p. 229.—Davies' Welsh Bot. p. 3.—Purt. Midl. Fl. v. ii. p. 495.—Reth. Fl. Cant. (3rd ed.) p. 6.—Hook. Fl. Scot. p. 3.—Phill. Sylv. Fl. v. i. p. 79.—Grev. Fl. Edin. p. 2.—Kent's Syl. Sket. p. 20.—Fl. Devon. pp. 2 & 153.—Johnst. Fl. of Berw. v. i. p. 5.—Winch's Fl. of Northumb. and Durh. p. 1.—Wa'ker's Fl. of Oxf. p. 3.—Murr. North. Fl. p. 4.—Burn. Outl. of Bot. v. ii. p. 1023. sect. 4658.—Bab. Fl. Bath. p. 30.; Prim. Fl. Sarn. p. 60.—Diek. Fl. Abred. p. 20.—Irv. Lond. Fl. p. 137.—Luxf. Reig. Fl. p. 3.—Cow. Fl. Guide, p. 31.—Maek. Catal. Pl. Irel. p. 8; Fl. Hibern. p. 178.—Fraxinus, Ray's Syn. p. 469.—Johnson's Gerarde, p. 1472.

LOCALITIES .- In woods and hedges.

A Tree.—Flowers in March and April, before the leaves appear.

A tall and handsome tree, with a smooth, grey bark, and short, egg-shaped, blunt, coal-black, rather downy buds. Leaves oppo-

Fig. 1. A perfect Flower.—Fig. 2. A Flower with Stamens only —Fig. 3. A Flower with Pistil only.—Fig. 4. A Capsule.—Fig. 5. The same opened at the base to show the seed.—Fig. 6. The umbilical Cord, a.; and the Seed, b.

^{*} From phrasso, Gr. to hedge or enclose; the Ash having been formerly use for making hedges.

Don.

See folio 50.

See folio 119, a.

site, petiolated, of from 5 to 13, nearly sessile, egg-spear-shaped, pointed, serrated, smooth leaflets, whose main rib is fringed beneath; their common peduncle channelled and bordered. Flowers in lateral panicles or bunches, small, brown, and very simple, having neither calyx nor corolla, and consisting only of a pistil, with (usually) one short stamen at each side (see fig. 1). Occasionally, on the same tree, there are, besides the perfect flowers, some with stamens only (fig. 2); and others with pistils only (fig. 3). On this account LINN AUS placed it in his 23rd class, Polygamia. Capsules (see figs. 4 & 5.) with a flat, leaf-like termination, an inch long, and generally of 2 cells, with 1 seed in each; these are called, by our country people, ash keys. Seeds (fig. 6, b.) oblong, glittering with rusty-coloured meal, like an almond, but bitter and nauceous, attached to the receptacle by a long umbilical cord (funiculus umbilicalis), see fig. 6, a.

The Ash, when well grown, is a very elegant and graceful tree; GILPIN styles it, and not inappropriately, the Venus of the Forest. It yields a valuable timber, which is hard and tough, and of excellent use to the coachmaker, wheelwright, and cartwright, for ploughs, axle-trees, fellies, harrows, and many other implements of husbandry. When curiously veined, as it sometimes is, the cabinet-makers use it, and call it green Ebony; and when our woodmen light upon it, says Evelyn, they may make what money they will of it. The wood of the Ash possesses the very singular property of being in perfection even in infancy,-a pole three inches in diameter being as valuable and durable, for any purpose to which it can be applied, as the timber of the largest tree. Of all timber it is the sweetest fuel, and will burn even whilst it is green, with very little smoke. The ashes of the branches and shoots afford very good potash; the bark is used for tanning nets and calf-skins; and the leaves for adulterating tea; an infusion of them is an aperient; and a decoction of two drachms of the bark, or six of the leaves, has been used in the cure of agues. If cows eat the leaves or shoots, the butter from their milk is said to be rank; but this is doubtful, for there is no taste in ash-leaves to countenance the assertion, and the Romans recommended the leaves of the Ash, next to those of the Elm, for fodder. The Ash is, however, a very improper tree for hedgerows, and the borders of arable land, as the drip of it is very unfavourable to all other productions, and it exhausts the soil much, and the roots spread widely near the surface, so that it injures the hedge, and impoverishes the crop sown near it.

It is late before it comes into leaf, and its foliation affords a just criterion to the gardener when prudently to venture green-house plants into the open air; and the first change of its leaves in the Autumn, should be considered the signal for withdrawing them. In the dark ages the Ash was associated with various gross superstitions, whose vestiges may still be traced in many parts of Britain.—Accounts of several superstitious ceremonies connected with the tree in question, may be seen in Evelyn's Silva; Puillips' Sylva Florifera; Kent's Sylvan Sketches; Loudon's Arboretum et Fruticetum Britannicum; Withering's Arrangement of British Plants, (7th ed.); Don's General System of Gardening and Botany; and The Gentleman's Magazine, V. 55. (1785) p. 798.

Several varieties of the Ash are cultivated in gardens, particularly that with pendulous branches, called the Weeping Ash.

Fraxinus heterophylla of Smith's English Flora, is considered by many as only a variety of the present species; a solitary tree of it is growing near the top of the horse-walk, Christ Church Meadow, Oxford.

Sphæ'ria concentrica, Bolt.; S. pruinosa, Fries; S. cortices, Sow.; and Hysterium Fraxini, Pers.; are parasitic on decaying and dead trunks and branches of the Ash, about Oxford.



Vaccinium Vites Idaea. Red Whortle-berry h

Russell. Del.

Public Il Baxtor Bolanic Carden, Oxford. 1840.

Mathews Sc.

VACCI'NIUM*.

Linnean Class and Order. OCTA'NDRIA†, MONOGY'NIA.

Natural Order. VACCINIE'Æ, Dec.—Lindl. Syn. p. 134; Intr. to Nat. Syst. of Bot. p. 184.—Loud. Hort. Brit. p. 523.—Mack. Fl. Hibern. p. 135.—Hook. Brit. Fl. (4th edit.) p. 411.—ERICÆ, Juss. Gen. Pl. p. 159.—Sm. Gram. of Bot. p. 115.—ERICA'CEÆ; tribe, VACCINIE'Æ, Don's Gen. Syst. of Gard. and Bot. v. iii. pp. 785 and 789.—Loud. Arb. et Frutic. Brit. pp. 1076 & 1078.—ERICINEÆ; sect. VACCINIE'Æ, Rich. by Macgilliv. pp. 151 & 152.—SYRINGALES; subord. ERICOSÆ; sect. ERICINÆ; type, VACCINIA'CEÆ; Burn. Outl. of Bot. v. ii. pp. 900, 937, & 944.—BICORNES, Linn.

GEN. CHAR. Calyx (see fig. 1.) superior, small, of 1 sepal, entire, or 4- or 5-toothed, permanent. Corolla (figs. 3 & 4.) of 1 petal, bell-shaped, or pitcher-shaped, 4- or 5-cleft, segments reflexed. Filaments (see fig. 4.) 8, sometimes 10, awl-shaped, flattened, inserted into the receptacle, equal. Anthers (see fig. 5.) terminal, upright, oblong, with 2 points, opening by a terminal pore in each. Germen inferior, roundish. Style (see figs. 1 & 2.) simple, cylindrical, upright, longer than the stamens. Stigma blunt. Berry (see figs. 6, 7, & 8.) globular, with a central depression, 4- or 5-celled, many-seeded. Seeds (fig. 9.) small, angular.

The entire, or 4- or 5-toothed, superior calyx; the monopetalous, bell-shaped, 4- or 5-cleft corolla; the 2-pointed anthers, opening at the tip; and the globose, 4- or 5-celled, many-seeded berry; will distinguish this from other genera in the same class and order.

Three species British.

VACCI'NIUM VITIS IDÆ'A. Cow-berry. Red Whortle-berry. Red Bilberry.

Spec. Char. Clusters terminal, drooping, with egg-shaped, concave bracteas, longer than the flower-stalks. Leaves evergreen, inversely egg-shaped, dotted beneath, their margins slightly revo-

lute, minutely toothed. Corolla bell-shaped.

Engl. Bot. t. 598.—Fl. Dan. t. 40.—Lodd. Bot. Cab. t. 1023.—Linn. Sp. Pl. p. 500.—Huds. Fl. Angl. (2nd ed.) p. 164.—Willd. Sp. Pl. v. ii. pt. 1. p. 354.—Sm. Fl. Brit. v. i. p. 415.; Engl. Fl. v. ii. p. 220.—With. (7th ed.) v. ii. p. 479.—Lindl. Syn. p. 134.—Hook. Brit. Fl. p. 178.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 855.—Loud. Arb. et Frutic. Brit. p. 1164. fig. 987.—Macr. Man. Brit. Bot. p. 148.—Lightf. Fl. Scot. v. i. p. 202.—Purt. Midl. Fl. v. ii. p. 731.—Hook. Fl. Scot. p. 118.—Grev. Fl. Edin. p. 87.—Johnst. Fl. of Berw. v. i. p. 88.—Winch's Fl. of Northumb, and Durh. p. 25.—Walker's Fl. of Oxf. p. 109.—Perry's Pl. Varvie. Sel. p. 34.—Dick. Fl. Abred. p. 35.—Irv. Lond. Fl. p. 243.—Mack. Cat. Pl. Irel. p. 37; Fl. Hibern. p. 136.—Vaccinia rubra, Johnson's Gerarde, p. 1415.—Vitis-Idwa punctifolia, Gray's Nat. Arr. v. ii. p. 406.—Vitis Idwa sempervirens fructurubro, Ray's Syn. p. 457.

Localities.—On dry, barren, stony, turfy heaths, and in mountainous woods.—Cheshire; Common on the moors. In old slate-quarries on Stayley Moors, where it bears fruit in Summer and at Christmas. Mole-Cop, Congleton Edge, and Cloud, three hills near Congleton.—Cumberland; On almost all the hills,

Fig. 1. Calyx and Pistil.—Fig. 2. Calyx and Bracteas.—Fig. 3. Corolla.—Fig. 4. The same, opened vertically, to show the 8 Stamens.—Fig. 5. A Stamen, magnified.—Figs. 6 & 7. Berrics.—Fig. 8. A transverse section of a Berry.—Fig. 9. A Seed.

^{*} Etymology of the word uncertain. Thouston says it is from bacca, L. a berry, the b being changed into v. + See folio 12, note +.

but finest on those W. of Derwentwater, as Grassmoor and Grisedale Pike.—Derbysh. High moors beyond Mam Tor and Win Hill, from Castleton; East More; High Moor, near Hayfield; Cromford Moor; Combe's Moor; and Holme Moss.—Durham; Near Eglestone; on turfy heaths at Butsfield, Stanhope in Weardale, and in Teesdale Forest; in woods at Witton-le-Wear, and Howns near Medomsley; on the heath at the source of a Roman aquedut W. of Woodland, near Butsfield; and on rocks at Cauldron Shout.—Gloucestersh. Leigh Wood.—Herefordsh. North patts.—Kent; Golden Wood, Feversham, towards the N. end, abundantly.—Lancash. Clangha Hill, near Lancaster.—Northumberland; On Cheviot and Hedgehope; also in Allendale; in the wood at Roadley, and on the moors near Wallington; in East Common Wood, and on the banks of West Dipton, near Hexham; on rocks at Long Crag, near Walling Street, by the road to Throckington from Gunnerton; also on the moor edge near Dilligate Hall, on the hill at Hepburn near Chillingham.—Notts; In bogs on the Rainworth; particularly abundant near Fountain Dale; Papplewick Forest.—Shrapsh. Summit of the Stiperstones, plentifully—Somersetsh. Leigh Woods near Bristol, and in that neighbourhood.—Staffordsh. In the mountainous parts; Carrock Heath, in a dry gravel. Plentiful in Molecop.—Warrwicksh. Boggy heaths between Middleton and Sutton; Sutton Wood near Routon Well, (Mr. W. Ick).—Westmoreland; Winfield Forest.—Worcestersh. Lower Bromsgrove Lickey.—Yorksh. In several parts of the county.—Not uncommon in WALES.—Plentiful in SCOTLAND; and in some parts of IRELAND. For authorities, see New Botanist's Guide.

A Shrub.—Flowers in April and May.

Root creeping, woody. Stems mostly upright, 3 to 5 inches high, flexuose, angular; with a few downy branches towards the top. Leaves alternate, on short petioles, rigid, evergreen, inversely egg-shaped, veiny, their margins slightly revolute, and minutely toothed towards the summit; of a dark shining green above; pale, and dotted beneath. Flowers in drooping, terminal clusters, each with a pale, egg-shaped, concave, fringed, deciduous bractea at the base of its partial stalk (see fig. 2). Calyx (fig. 1.) deeply 4-cleft, fringed. Corolla pale pink or white, bell-shaped, with 4 segments, octandrous. Anthers (see fig. 5.) double-pointed, without spurs,

Berries globose, blood-red, acid, astringent, and bitter.

This little shrub is a native of dry, barren, stony woods and heaths in most of the northern countries of Europe; also of America, on rocks on the sea-coast, from Canada to New England, but the American plant is larger than ours. It is found also in the whole of Russia, and in Siberia, more especially in pine woods. In Sweden and Norway, it is said to be used in gardens for edgings, as box is in Central Europe. The berries are eaten by the Laplanders and other country people, but they are acid, and not very grateful. LINNÆUS says that they are sent in large quantities from West Bothnia to Stockholm for pickling. They are also made into tarts, but are less palatable than either the Cranberry or Bilberry. mersion in water for some hours is said to remove their disagreeable bitterness. An excellent rob, or jelly, is made from them, which is eaten in Sweden, with all kinds of roast meat, and considered preferable to red currant jelly as a sauce for vension. In Wales it is used with roast mutton. It is also much recommended for colds, sore throats, and all irritations of the mouth or fauces.

The plant may be cultivated in a moist shady border of bog-earth. Goats eat it; but cows, sheep, and horses refuse it.—See Loup. Arb. et Frutic. Brit.; Don's Mill. Dict. &c.—Hystérium melaleucum, Fr. Hook. Brit. Fl. v. ii. pt. 11.

p. 295, is often parasitic on its dead leaves.

For the plant from which the drawing for the accompanying plate was made. I am indebted to the kindness of Mr. O. Jewitt, of Headington, near Oxford, who obtained it from one of its localities in Deibyshire. The flowers were perfectly white.





Irenaria verna Vernal sandwort. U

ARENA'RIA*.

Linnean Class and Order. DECA'NDRIA+, TRIGY'NIA.

Natural Order. CARYOPHY'LLEE;, Linn.—Juss. Gen. Pl. p. 299.—Sm. Gram. of Bot. p. 159.—Lindl. Syn. p. 43.; Introd. to Nat. Syst. of Bot. p. 156.—Rich. by Macgilliv. p. 507.—Loud. Hort. Brit. p. 501.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 379.—Mack. Fl. Hib. p. 40.—Hook. Brit. Fl. (4th ed.) p. 400.—Rosales; subord. Rhæadosæ; sect. Dianthinæ; type, Dianthaceæ; Burn. Outl. of Bot. pp. 614, 784, 805, & 807.

GEN. CHAR. Calyx (fig. 1.) inferior, of 5, oblong, pointed, spreading, mostly ribbed, permanent sepals. Corolla (fig. 2.) of 5, egg-spear-shaped, undivided petals (see fig. 3). Nectaries (see fig. 4.) 5 or 10 glands at the base of the stamens. Filaments (see fig. 4.) 10, awl-shaped. Anthers roundish. Germen (see fig. 5.) superior, egg-shaped. Styles (see fig. 5.) 3, short, spreading. Stigmas downy. Capsule (see fig. 6.) egg-shaped, covered by the permanent calyx and withered corolla, of 1 cell, and 3, rarely 6, valves. Seeds (see figs. 6 & 7.) numerous, kidney-shaped, roughish, attached to a short central column.

The corolla of 5 undivided, spreading petals; and the 1-celled, many-seeded capsule, opening by 3 or 6 teeth at the apex; will distinguish this from other genera in the same class and order.

Eleven species British. See Hook. Brit. Fl. 4th edit.

ARENA/RIA VERNA. Vernal Sandwort. Mountain Chickweed.

SPEC. CHAR. Stems numerous, panicled above. Leaves awlshaped, bluntish, 3-nerved when dry. Petals inversely egg-shaped, longer than the remotely 3-nerved calyx.

Engl. Bot. t. 512.—Jacq. Fl. Austr. vol. v. p. 2. t. 404.—Linn. Mant. p. 72.—Huds. Fl. Angl. (2nd ed.) p. 191.—Willd. Sp. Pl. v. ii. pt. 1. p. 724.—Sm. Fl. Brit. v. ii. p. 482.; Engl. Fl. v. ii. p. 309.—With. (7th ed.) v. ii. p. 552.—Gray's Nat. Arr. v. ii. p. 654.—Lindl. Syn. p. 50.—Hook. Brit. Fl. p. 206.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 434.—Macr. Man. Brit. Bot. p. 33.—Lightf. Fl. Scot. v. i. p. 231.—Purt. Midl. Fl. v. ii. p. 732.—Hook. Fl. Scot. p. 138.—Grev. Fl. Edin. p. 99.—Johnst. Fl. Berw. v. i. p. 98.—Winch's Fl. of Northumb. and Durh. p. 29.—Ivv. Lond. Fl. p. 248.—Mack. Fl. Hibern. p. 47.—Arenaria saxatilis, Huds. Fl. Angl. (1st edit.) p. 168.—With. (1st edit.) v. i. p. 257.—Penn. Tour in Walcs, t. 2. f. 1.—A. juniperina, With. (5th edit.) p. 521.—A. laricifolia, Lightf. Fl. Scot. v. i. p. 232.—With. (5th edit.) p. 521.—Alsine pusilla pulchro flore folio tenuissimo nostras, Ray's Syn. p. 350.

LOCALITIES.—In rocky and mountainous pastures; rare.—Cheshire; High pastures at Stayley: Mr. Bradruby.—Cornwall; About Kynance Cove: Mr. H. C. Watson, in N. B. G.—Cumberland; Hallen Hag, Swarth Fell, and Place

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. A Petal.—Fig. 4. Stamens and Pistils.—Fig. 5. Germen and Styles.—Fig. 6. Capsule.—Fig. 7. A Sced.—Fig. 8. Section of the Stem with 2 of the Leaves.—All, except fig. 2, more or less magnified.

[•] From arenia, L. sand; in allusion to the arid, sandy places, in which most of the species grow.

[†] See folio 37, note t. # See folio 152, a.

Fell, Ull-water; Alsten Moot, and Cross Fell: N. B. G.—Derbysh. On leadnine hillocks; on Masson, (a high mountain near Matlock,) plentiful: Mr. O. Jewitt. See Matlock Companion. pp. 26 & 27. Between Bakewell and Castleton: Mr. J. Woods, jun. Middleton Dale; and Crich: Mr. Coke. Near Matlock Bath; on Peveril Castle, and neighbouring lime-rocks: Mt. H. C. Watson, in N. B. G.—Durham; Upon the Wolds near Cauldron Snout, Teesdale; on the Moors in Weardale; and on Cronkley Fell. Teesdale: N. J. Winch, Esq. On the Moors in Weardale; and on Cronkley Fell. Teesdale: N. J. Winch, Fig. Herefordsh. In the nothern parts of the county: Duncum.—Northumberland; On old mine heaps in Allendale: N. J. Winch. Esq. On the banks of Tyne, near Crow-hall: Mr. J. Thompson. On Spindlestone Craigs: Mr. R. Fibleton, in Fl. of Berw. p. 294.—Somersetsh. Mendip Hills: Maton.—Westmoreland; About Kendal: Hudson. On some craggy ground about half-way between Bikdale and Dufson (Dufton?): N. B. G.—Yorksh. Mountains about Settle; and upon Hinklehaugh: Teesdale. Near Pately Bridge by Ripon; and in Wensley Dale, common: Mr. Brunton. Near Scatborough: Travis. In great abundance all the way from Richmond through Wensleydale to the mountains; on the top of Pennighant; and at 2000 feet on Cronkley Fell.—WALES. Brecknocksh. Cader Arthur, 3 miles from Brecon: Evens, in B. G.—Caernarvonsh. Rocks on Snowdon: Mr. H. C. Watson, in N. B. G. Near Llanherris; Mr. Griffith Rocks near Twild fû; and on Clogwyn y Garnedd: Bingley. Cwm Idwell; Llandudno; and Little Ormeshead: Mag. Nat. Hist.—Denbighsh. Mine hillocks, not common: Bowman, in N. B. G.—Flintsh. Between Holywell and St. Asaph, on the rubbish of mines: Mr. Griffith. Between Holywell and St. Asaph, on the rubbish of mines: Mr. Griffith. Between Holywell and in a deep glen about a mile south of Fastcastle: Rev. A. Bahd. Spindlestone Craigs: Fl. Berw.—Edinburghsh. Plentiful on Salisbury Craigs and Arthur's Seat, and occasionally on the Pentland Hills: Mr. M. C. Watson, in N. B. G.—Perthsh. Mael Dun-crosk, a v

Perennial.-Flowers in May and June.

Root somewhat woody, branching, and fibrous. Stems very numerous, tufted, ascending, from 3 to 5 inches high, spreading, round, or somewhat angular, leafy, slightly pubescent and vicid; bearing terminal, few-flowered panicles. Leaves numerous, short, smooth, 3-ribbed beneath, with blunt points, connate at the base; lower ones crowded, often incurved; upper ones distinct. Bracteas small and short, 3-ribbed. Flower-stalks often clothed with spreading, glandular hairs. Calyx hairy, of 5, egg-shaped, pointed sepals, membranous at the margins, each with 3, equal, distant ribs. Corolla white; petals inversely egg-shaped, longer than the calyx. Capsule cylindrical, of 3 valves, longer than the calyx. Seeds compressed, rough.

Sir J. E. SMITH observes, that some rather larger or smaller specimens, not to be called varieties, have been occasionally mistaken for A. saxatilis, juniperina, or laricifolia, of LINNÆUS; all very different from this, and from each other, and hitherto not found wild in Britain.

It has been remarked by the Rev. PIKE JONES, in his "Botanical Tour," pp. 20 and 21, that this plant has the peculiar power of resisting the poisonous effects of the metallic oxides which usually pervade the refuse heaps thrown out from leadmines, and is found to flourish in such situations, usually destructive to vegetable life. See Sm. Engl. Fl. and With. Bot. Arr. 7th edition.

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Gorophularia nodosa. Knotted Figwort. 4 Mathem Oxford 2810.

RuselDel

SCROPHULA'RIA*.

Linnean Class and Order. DIDYNA'MIA+, ANGIOSPE'RMIA . Natural Order. SCROPHULARI'NEES, Dr. R. Brown.-Lindl. Syn. p. 187.; Introd. to Nat. Syst. of Bot. p. 228.—Mack. Fl. Hib. p. 198.—Hook. Brit. Fl. (4th edit.) p. 414.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 500 .- SCROPHULA'RINE; Rich. by Magilliv. p. 434.--Sm. Engl. Fl. v. iii. p. 115.-Loud. Hort. Brit. p. 528.-SCROPHULA'RIÆ; Juss. Gen. Pl. p. 117.—Sm. Gram. of Bot. p. 100.—Syringales; subord. Primulosæ; sect. Menthinæ; type, SCROPHULARIACEÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, and

978.—Personatæ, Linn.

GEN. CHAR. Calyx (fig. 1.) inferior, with 5 rounded, nearly equal, marginal segments, much shorter than the corolla. (fig. 2.) globose; its limb contracted, with 2 short lips; upper lip with 2 lobes, and frequently a small scale or abortive stamen within it (see fig. 6.); lower lip shorter, 3-lobed. Filaments (see fig. 3.) 4, didynamous, declined towards the upper lip, strap-shaped, shorter than the corolla. Anthers terminal, blunt, of 2 valves. (see fig. 5.) egg-shaped. Style (see fig. 5.) the length of the stamens. Stigma simple. Capsule (fig. 7.) egg-shaped, or globular, pointed, of 2 cells and 2 valves; the margins of the valves turned inwards. Seeds (fig. 8.) numerous, small, angular, attached to a globose central receptacle.

The 5-lobed, or 5-cleft, inferior calyx; the nearly globose corolla, with an inflated tube, and a short, contracted, irregular, 5-lobed limb; and the capsule of 2 cells, and 2 valves, with inflexed margins; will distinguish this from other genera in the same class and order.

Four species British.

SCROPHULA'RIA NODO'SA. Knotty-rooted Figwort. Great Figwort. Kernelwort. Brownwort.

SPEC. CHAR. Leaves oblong-heart-shaped, acute, doubly serrated, smooth, 3-ribbed at the base. Stem with 4 acute angles. Root tuberous.

Engl. Bot. t. 1544.—Fl. Dan. t. 1167.—Linn. Sp. Pl. p. 863.—Huds. Fl. Angl. (2nd ed.) p. 274.—Willd. Sp. Pl. v. iii. pt. 1. p. 270.—Sm. Fl. Brit. v. ii. p. 663.; Engl. Fl. v. iii. p. 137.—Willd. Sp. Pl. v. iii. p. 738.—Lindl. Syn. p. 193.—Hook. Brit. Fl. p. 288.—Macr. Man. Brit. Bot. p. 168.—Don's Gen. Syst. of Gard. & Bot. v. iv. p. 508.—Lightf. Fl. Scot. v. i. p. 329.—Sibth. Fl. Oxon. p. 196.—Abbot's Fl. Bedf. p. 138.—Davies' Welsh Bot. p. 61.—Purt. Midl. Fl. v. i. p. 292.—Relh. Fl. Cant. (3rd edit.) p. 275.—Hook. Fl. Scot. p. 189.—Grev. Fl. Edin. p. 137.—Fl. Devon. pp. 105 & 148.—Johnst. Fl. of Berwiek, v. i. p. 138.—Winch's Fl. of Northumbl. and Durh. p. 42.—Walker's Fl. of Oxf. p. 179.—Lindl. Fl. Med. p. 503.—Bab. Fl. Bath. p. 35.; Prim. Fl. Sarn. p. 69.—Dick. Fl. Abred. p. 45.—Irv. Lond. Fl. p. 130.—Luxf. Reig. Fl. p. 55.—Mack. Catal. Pl. of Irel. p. 58.; Fl. Hibern. p. 205.—Scrophulária májor., Ray's Syn. p. *283.—Johnson's Gerarde, p. 716.—Scrofulária nodósa, Gray's Nat. Arr. v. ii. p. 320.

LOCALITIES. - In woods and hedges; frequent.

Fig. 1. Calyx.—Fig. 2. Corolla,—Fig. 3. Corolla opened, to show the Stamens and Pistil.—Fig. 4. A single Stamen.—Fig. 5. Calyx, Germen, Style, and Stigma.—Fig. 6. Upper Lip of the Corolla, shewing the Scale, or Sterile Stamen.—Fig. 7: A Capsule. - Fig. 8. A Seed. - Figs. 3 & 4, a little magnified.

^{*} So named from its supposed use in the eure of Scrofula. Don. † See folio 31, note +.

\$ See folio 72, note \$.

\$ See folio 50, a.

Perennial.-Flowers in June and July.

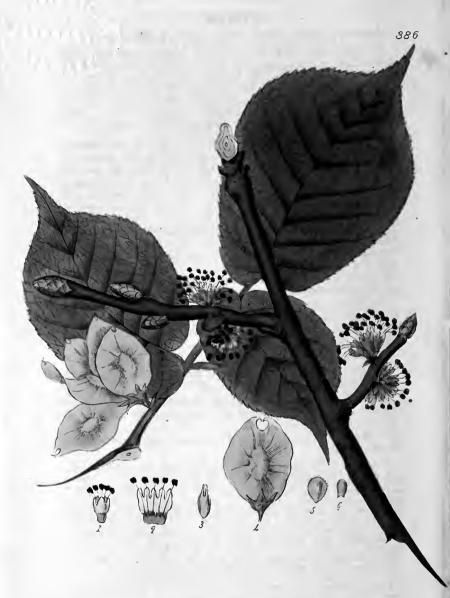
Root large, whitish, tuberous, beset with roundish knobs, which are said to disappear as the plant attains maturity. Stem 2 or 3 feet high, upright, nearly simple, leafy, sharply 4-angled, smooth and glossy, often of a reddish-brown colour, the angles sometimes edged with a membranous line, but not winged. Leaves opposite, on shortish petioles, imperfectly heart-shaped, pointed, sharply and unequally serrated, the base cut away, as it were, to the two small lateral ribs; brownish green above, paler beneath. Flowers small, a little drooping, in a compound, terminal panicle, accompanied by spear-shaped, taper-pointed bracteas. Calyx small, with 5 blunt teeth, which are membranous at the margin. Corolla of a dull green, roundish-egg-shaped; the two upper segments of a dusky purple, with a small, kidney-shaped scale, or sterile stamen, at their base within; the two lateral segments expanding; the lower one rolled back. Capsule egg-shaped.

This species has the name Figwort, and formerly Kernelwort, from its knotted roots, and Brownwort from the brown tinge of its leaves. In medicine the plant is hardly known in modern practice, but the rank smell, like Elder, and bitter taste of the leaves, seem to indicate active properties. The leaves and roots are said to be purgative and emetic. Gerarde says, "divers do rashly teach, that if it be hanged about the necke, or else carried about one, it keepeth a man in health."—Swine that have the scab are cured by washing them with a decoction of the leaves. Wasps resort greatly to the flowers in search of the honey-like liquor at the base of the tube of the corolla. Goats eat the plant; but cows, horses, sheep,

and swine, refuse it.

RAY informs us, in the 2nd edition of his Synopsis, p. 161, that a variety of S. nodosa, with the stem, leaves, and flowers all green, was found by BOBART near Cumnor, Berks, previous to 1696; and remarks, "Common Figwort is called Brownwort from its remarkable brown colour. This hath nothing of Brownness in it." This green variety was found in the same locality in 1830, by His Grace the present Archeishop of Dublin, by whom it was introduced into the Oxford Botanic Garden, where it is still growing, and remains unchanged by cultivation.

Professor Burnett, in his very useful work, entitled Outlines of Botany, p. 981, says, the Scrophulariæ received their generic name from the resemblance the tunid roots of some of the species bear to scrofulous swellings, and to which they were applied as poultices, the doctrine of signatures leading to the belief that nature thus indicated their virtues and the purposes to which they should be applied. Sir J. E. Smith, however, seems to have been of a different opinion, for he says, (Engl. Fl. v. iii. p. 138.) Scrophularia nodosa having been taken for the Galeopsis of Dioscorides, which is really S. peregrina, and though celebrated for its use in scrofulous disorders, has no tuberous root, it may not be correct to suppose this sort of root first recommended our plant to medical use, or was the origin of the generic name. If, however, such were the case, it would not be without example in the history of medicine.



Umus montarea. Wych Elm &

Mathews, Del & Sc.

U'LMUS*.

Linnean Class and Order. PENTA'NDRIA+, DICY'NIA.

Natural Order. ULMA'CEE, Mirbel.—Lindl. Syn. p. 225.; Intr. to Nat. Syst. of Bot. p. 94.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 240.—Hook. Brit. Fl. (4th edit.) p. 419.—URTICEE; tribe, CELTIDEE; Rich. by Macgilliv. pp. 540 & 541.—AMENTA'-CEE, sect. 1. Juss. Gen. Pl. pp. 407 & 408.—Sm. Gr. of Bot. pp. 189 & 190.—QUERNEALES; sect. ULMINE; type, ULMACEE; Burn. Outl. of Bot. pp. 523, 538, & 539.—SCABRIDE of Linnæus.

GEN. CHAR. Calyx (see fig. 1.) inferior, of 1 sepal, turbinate, wrinkled, 4- or 5-cleft, permanent, coloured on the inner side. Corolla none. Filaments (see figs. 1 & 2.) as many as the segments of the calyx, and twice as long, inserted into the tube opposite to each segment. Anthers upright, short, with 4 furrows, and 2 cells, bursting lengthwise externally. Germen (fig. 3.) superior, elliptic-oblong, compressed, cloven at the summit. Styles (see fig. 3.) 2, terminal, spreading, shorter than the calyx, finally bent inwards. Stigmas along the inner edge of the style, downy, permanent. Capsule (fig. 4.) compressed, with a membranous wing all round, (hence a Samara), orbicular or somewhat oblong, with a notch at the extremity, of 1 cell, not bursting. Seed (fig. 5.) solitary, central, roundish, slightly compressed.

The inferior, monosepalous, 4- or 5-cleft, permanent calyx; and the compressed, 1-celled, 1-seeded capsule, winged all round; will distinguish this from other genera, without a corolla, in the same

class and order.

Seven species British.

U'LMUS MONTA'NA. Mountain Elm. Scotch Elm. Wych Elm. Broad-leaved Elm. Wych Hazel.

SPEC. CHAR. Leaves inversely egg-shaped, pointed, doubly and coarsely serrated, wedge-shaped and nearly equal at the base, always exceedingly rough above, evenly downy beneath. Branches not corky, ash-coloured, smooth. Fruit somewhat orbicular, slightly cloven, naked.

Engl. Bot. t. 1887.—Bauh. Pin. p. 427.—With, 2nd. edit. v. i. p. 259; 7th edit. v. ii. p. 356.—Sm. Fl. Brit. v. i. p. 282. excl. var. β.; Engl. Fl. v. ii. p. 22.—Gray's Nat. Arr. v. ii. p. 250.—Lindl. Syn. p. 227.—Hook. Brit. Fl. p. 142.—Loud. Arb. et Frutic. Brit. p. 1398.—Davies' Welsh Bot. p. 26.—Purt. Midl. Fl. v. i. p. 137.—Relh. Fl. Cant. (3rd edit.) p. 108. excl. var. β.—Hook. Fl. Scot. p. 85.—Grev. Fl. Edin. p. 60.—Fl. Devon. pp. 46 & 136.—Johnst. Fl. Berw. v. i. p. 66.—Winch's Fl. of Northumbl. and Durh. p. 17.—Walker's Fl. of Oxf. p. 72.—Perry's Pl. Varv. Select. p. 24.—Bab. Fl. Bath. suppl. p. 91.; Prim. Fl. Saru. p. 90.—Irv. Lond. Fl. p. 118.—Mack. Catal. Pl. of Ircl. p. 26.; Fl. Hilbern. p. 241.—Ulmus glabra, Huds. Fl. Angl. (1st ed.) p. 95, fide Smith.—U. effusa, Sibth. Fl. Oxon. p. 87.—Abbot's Fl. Bedf. p. 55.—U. nuda, Ehrh. Arb. p. 62.—U. campestris, Willd. Sp. Pl. v. i. pt, 11. p. 1324.—Fl. Dan. t. 632.—Huds. Fl. Angl. (2nd ed.) p. 109. var. γ.—

Fig. 1. A Flower.—Fig. 2. The same opened to show the situation of the Stamens.—Fig. 3. Germen and Pistils.—Fig. 4. A Capsule.—Fig. 5. A Secd.—Fig. 6. The same, with the Testa removed.

^{*} According to Thee's, from the Anglo-Saxon Elm. Ulm is, however, still the German word for this tree. Hooker. † See folio 48, note t.

Lightf. Fl. Scot. v. i. p. 1094, variety .- U. scabra, Hunt. Evel. Silva, p. 119, note .-Ulmus folio latissimo scabro, Goodyer in Johnson's Gerarde, p. 1481.-Ray's Syn. p. 469.

LOCALITIES .- In woods and hedges; frequent.

Tree.-Flowers in March and April.

A large tree, growing to the height of from 50 to 100 feet, with long, widely spreading, somewhat drooping branches. Bark even, not corky; downy in a young state. Leaves large, 3 or 4 inches long, and 2 or 3 broad, doubly and coarsely serrated, somewhat inversely egg-shaped, with a long copiously serrated point; rough on the upper surface, with minute, callous, bristly tubercles; the under surface downy and paler, with straight, parallel, transverse ribs, which are copiously hairy at their origins and subdivisions. Flowers rather larger and paler, and in looser tufts than most of the species, each in 5, 6, or 7, oblong, pointed segments, with as many broad, rather heart-shaped, dark-purple anthers. Capsule (samara) broadly elliptical, almost orbicular, with a shallow notch at the end,

not extending half way to the seed.

The Wych Elm is a native of many other parts of Europe as well as of Britain; and, when full grown, is an elegant and noble tree. Its wood is tough, and valuable for many purposes. Mr. Ashworth (in Gard. Mag. v. xii. p. 409.) states it to be nearly equal in value to that of the Ash. "It is good," he says, "for the naves, poles, and shafts of gigs and other carriages; and from its not splinterthe naves, poles, and shafts of gigs and other carriages; and from its not splintering, as the Oak and Ash, in time of battle, for the swingle-trees of great-gun carriages. It is also used for dyers' and printers' rollers, the wood by constant use wearing smooth. Cartwrights employ it for shafts, naves, beds, rails, and standards for wheelbarrows, and the handles of spades, forks, and other agricultural implements." Gerarde says, that "when long bows were in use, there were very many made of the wood of this tree." The bark from the young boughs is stripped off in long ribands, and often used, especially in Wales, for securing thatch, and for various bindings and tyings, to which purpose its flexible and tough nature renders it well adapted. Lightfoot says, the Highlanders make good rones of it. In some parts of the country this tree is considered a make good ropes of it. In some parts of the country this tree is considered a preservative against witches; and Mr. Loudon informs us, in his valuable work above referred to, that in some of the midland counties, even to the present day, a little cavity is made in the churn, to receive a small portion of witch-hazel, without which the dairymaids imagine that they would not be able to get the butter to come. This species of Elm often attains a very large size. Two magnificent specimens of it may be seen in the Grove at Magdalen College, Oxford; the largest of these is more than 100 feet high, its trunk, 2 feet above the ground, measures 28 feet in girt, and its branches extend over a space of ground 120 feet in diameter. Another very fine tree of this kind is growing at Fyfield, about six miles from Oxford.—Septoria Ulmi, Hook. Brit. Fl. v. ii. pt. 11. p. 356, is not uncommon on the living leaves of this species near Oxford.

Ten varieties of the Wych Elm are described by Mr. Loudon, in his very excellent work, the Arboretum et Fruticetum Britannicum, and four of them figured. Some of these are worth cultivating in a useful, and others in an ornamental point of view. See pp. 1398 & 1399; and Plates 187 a., 188, and 188 a.

The Natural Order ULMACEE, of which the present genus is the only British example, consists of apetalous dicotyledonous trees or shrubs, with rough, alternate, simple, deciduous leaves, and stipula. The flowers are perfect or polygamous. The calyx is inferior, bellshaped, and divided. The stamens are definite. The ovary is superior, and 2-celled; with solitary, pendulous ovules; and 2 distinct stigmas. The fruit is 1- or 2-celled, indehiscent, membranous or drupaceous; and the seed solitary, and pendulous, with very little or no albumen.





Mathema D. & Se. Priotylus albidus White Periotylus. Il

PERISTY'LUS*.

Linnean Class and Order. GYNA'NDRIA+, MONA'NDRIA.

Natural Order. Orchi'dex, Linn.—Juss. Gen. Pl. p. 64.—Sm. Gram. of Bot. p. 81.; Engl. Fl. v. iv. p. 3.—Lindl. Syn. p. 256; Introd. to Nat. Syst. of Bot. p. 262.—Rich. by Macgilliv. p. 412.—Loud. Hort. Brit. p. 536.—Mack. Fl. Hibern. p. 274.—Macr. Man. Brit. Bot. p. 224.—Hook. Brit. Fl. (4th edit.) p. 425.—Palmares; order, Musales; sect. Orchidinæ; type, Orchidaceæ; Burn. Outl. of Bot. v. i. pp. 391, 437, 458, & 461.

GEN. CHAR. Perianthium \$\psi(calyx & corolla)\$ (see figs. 1. & 2.) superior, permanent. Sepals (fig. 2. a, a, a.) 3, concave, converging, ribbed, nearly equal. Petals (fig. 2. b, b.) 2, rather smaller than the sepals, egg-shaped, converging. Lip (nectary) (fig. 2. c.) lobed, spurred at the base. Spur (fig. 1. c., and fig. 2. d.) very short, usually inflated. Anthers (see fig. 3.) of 2 oblong, membranous cells, parallel or diverging. Glands of the pollen-masses stalked, naked. Germen (see fig. 1. b., & fig. 2. f.) oblong, or nearly cylindrical, furrowed, spirally twisted. Style (column) thick and short. Stigma a shining moist depression in front of the style. Capsule oblong, spiral. Seeds numerous.

The very short, usually inflated, spur; the anthers of 2 parallel or diverging cells; and the stalked pollen-masses with 2 naked glands; will distinguish this from other genera in the same class and order.

Two species British.

PERISTY'LUS A'LBIDUS. White Peristylus. White cluster-rooted Orchis. Whitish Hand-Orchis.

SPEC. CHAR. Knobs [of the root] tapering, clustered, undivided. Lip in three deep acute lobes; the middle one largest; spur one-third the length of the germen.

Peristylus albidus, Lindl. Syn. (2nd ed.) p. 261.—Platanthera albida, Lindl. Syn. (1st ed.) p. 261.—Habenaria albida, Brown in Ait. Hort. Kew. (2nd edit.) vol. v. p. 193.—Hook. Fl. Lond. t. 107.; Brit. Fl. p. 373.—Maer. Man. Brit. Bot. p. 227.—Hook. Fl. Scot. p. 252.—Grev. Fl. Edin. p. 185.—Dick. Fl. Abred. p. 53.
—Irv. Lond. Fl. p. 277.—Mack. Catal. Pl. of Irel. p. 76.; Fl. Hibern. p. 277.—Orchis albida, Willd. Sp. Pl. v. iv. pt. 1. p. 38.—Sm. Engl. Fl. v. iv. p. 18.—Winch's Fl. of Northumberl. and Durh. p. 56.—Orchis albida alba odorata, radice palmata, Ray's Syn. p. 381.—Pseudo-orchis alpina, flore herbaceo, Mich. Gen. p. 30. t. 26. f. A. B. C.—Satyrium albidum, Linn. Sp. Pl. p. 1338.—Huds. Fl. Angl. (2nd ed.) p. 387.—Sm. Fl. Brit. v. iii. p. 929.—Engl. Bot. t. 505.—With. (7th ed.) v. ii. p. 35.—Light. Fl. Scot. v. i. p. 519.—Entaticus albidus, Gray's Nat. Arr. v. ii. p. 205.

Fig. 1. A separate Flower; a, bractea; b, the germen; c, the spur.—Fig. 2. Front view of a Flower: a, a, a, sepals; b, b, petals; c, the lip; d, the spur; e, the column and pollen-masses; f, the germen.—Fig. 4. Summit of the Column, and the Pollen-masses.—All, more or less, magnified.

^{*} From peri, Gr. around; and stylos, Gr. a column. + See folio 8, note +.

‡ See folio 33, note ‡.

LOCALITIES.—In mountainous pastures; not common.—Cheshire; In Cocker's Fields, Stayley Wood: B. G.—Cumberland; Keswick. Mountainous pastures above Borrowdale: B. G. Hill-sides above Watendlath Tarn, and between Watendlath and Borrow: N. B. G.—Durham; Near Winch Bridge, and between Whey Syke and Widdy Bank, also on the banks of Nucton Bourn: N. J. Winch, Esq.—Northamptonsh. In a boggy place Iwo miles from Stanford, in the way to Stilton: Merrer (before 1666); suggested to be Peristylus viridis.—Northumberland; In pastures at Shewing Shields near the Roman Wall; also near Roadley Lake; Fallowlees Bourn, and Baybridge above Blanchland; at the north end of Crag Close near Barwesford; and in a field between Cambro and the Close Houses: Fl. of N. & D.—Westmoreland; Barrowfield Wood: N. B. G.—Worcestersh. Cradley Park, and Wickbury Hill, near Hagley: Mr. Scott, in Illust.—Yorksh. Mountains N. of Helmsley, rare. Moist meadows about Malham; Giggleswick Tarn near Settle; heathy moors above Hawnby near Thirsk; and at Dallow Gill: B. G. Thoraldby, Wensleydale, and Ingleton: N. B. G.—WALES. Cardigansh. On the exposed grassy hills, which surround Hafod: B. G.—Caernarvonsh. Road-side from Bangor to Llyn Ogwen; in moist meadows near Lord Penrhyn's slate quarries in Nani Francon; plentifully in Glyn Meadow between Cwn y Clo and Dolbadarn Casile; and near Llyn Cowlid in the meadows N. W. of Capel Cerig; rocky pastures near Bluen y Nant near Llyn Ogwen; and on the back of Snowdon on the way from Llanberris to Caernarvon: B. G.—SCOTLAND. More or less frequent in the counties of Aberdeen, Argyle, Ayr, Banff, Dumbarton, Elgin, Fife, Forfar, Inverness, Lanark, Orkney, Perth, Renfrew, Ross, and Stirling.—IRE-LANL. Mountain pastures, not unfrequent. Luggelaw and other places in the county of Wicklow. Abundant in Antrim and Derry: Fl. Hibernica.

Perennial.—Flowers in June and July.

Root of about 3 pair of tapering, somewhat flexuose, cylindrical, undivided, brownish knobs, with 3 or 4 slender, thread-shaped radicles, from above their common origin. Stem from 5 inches to about a foot high, upright, leafy, slightly striated, hollow. Leaves light green, rather glaucous beneath; upper ones spear-shaped; lower ones broader, sheathing at the base, and rounded at the summit. Flowers numerous, small, slightly fragrant; in a cylindrical, close, narrow spike. Bracteas (fig. 1. a.) egg-spear-shaped, bluntish, about as long as the germen. Sepals (fig. 2. a, a, a.) and petals (fig. 1. b, b.) egg-shaped, concave, moderately converging, cream-coloured, very similar both in form, size, and hue. Lip (fig. 1. c.) a little longer, and greener, somewhat deflexed; 3-lobed, the middle

incurved, short and thick. Anthers (see fig. 2.) yellowish. Pollenmasses (see fig. 2. e., and fig. 3.) yellow.

A curious little plant, native of many other parts of Europe as well as of Britain.

lobe the largest, and sometimes bluntish. Spur (fig. 1. c. & fig. 2. d.)

The Natural Order Order Order Decinion is composed of monocotyledonous, herbaceous plants, frequently, in the terrestrial species, with tuberous roots. Their leaves are simple, quite entire, and often articulated with the stem. Their flowers are produced in terminal or radical spikes, racemes, or panicles; sometimes solitary. The perianthium is superior, ringent, in 6 segments in 2 rows, mostly coloured; one, the lowest one (so situated from the twisting of the ovary) different in form from the rest, and often spurred. The stamens are 3, united in a central column, the two lateral ones usually abortive, the central one perfect; or the central one abortive, and the two lateral ones perfect. The anther is 2- or 4- or 8-celled, and often deciduous. The pollen is powdery or frequently cohering in waxy masses. The ovary is 1-celled, with 3 parietal receptacles. The style forms part of the column with the stamens. The stigma is a viscid space in front of the column. The capsule is 3-valved, rarely baccate; and the seeds are numerous, with a loose, reticulated testa; and no albumen.

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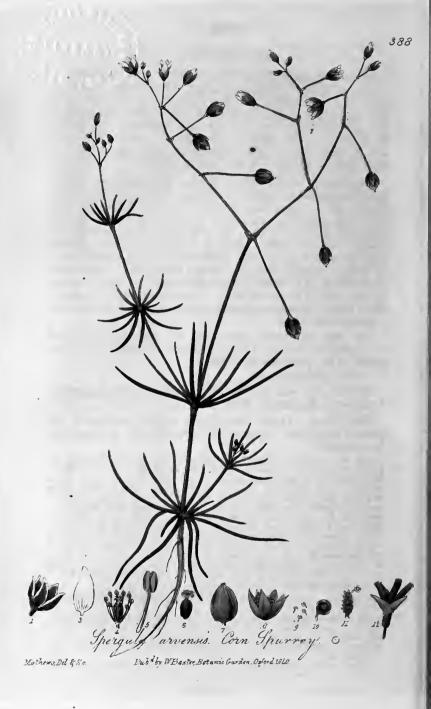
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SPE'RGULA*.

Linnean Class and Order. DECA'NDRIAT, PENTAGY'NIA.

Natural Order. CARYOPHY'LLEET, Linn.—Juss. Gen. Pl. p. 299 .- Sm. Gram. of Bot. p. 159 .- Lindl. Syn. p. 43.; Introd. to Nat. Syst. of Bot. p. 156 .- Rich. by Macgilliv. p. 507 .- Loud. Hort. Brit. p. 501.—Don's Gen. Syst of Gard. and Bot. v. i. p. 379.— Mack. Fl. Hib. p. 40.—Hook. Brit. Fl. (4th ed.) p. 400.—Rosales; subord. RHŒADOS.E; sect. DIANTHINÆ; type, DIANTHACEÆ; Burn. Outl. of Bot. pp. 614, 784, 805, & 807.

Calyx (fig. 1.) inferior, of 5 egg-shaped, blunt, GEN. CHAR. spreading, permanent sepals, more or less membranous at the edges. Corolla (fig. 2.) larger than the calyx, of 5 egg-shaped, concave, undivided, spreading petals, with very short claws (see fig. 3). Filaments (see figs. 4 & 5.) 10, sometimes but 5, awl-shaped, shorter than the corolla. Anthers roundish, 2-lobed. (fig. 6.) superior, egg-shaped. Styles (see fig. 6.) 5, short, slender, spreading. Stigmas downy. Capsule (figs. 7 & 8.) egg-shaped, membranous, of 1 cell and 5 (some authors say 6) connected valves, covered with the permanent calyx. Seeds (see figs. 9 & 10.) roundish or kidney-shaped, compressed, rough or smooth, sometimes with a membranous border.

The calyx of 5 sepals; the corolla of 5 undivided petals; and the capsule of 1 cell and 5 valves; will distinguish this from other genera in the same class and order.

Four species British.

SPE'RGULA ARVE'NSIS. Corn Spurrey. Field Spurrey. Pick-purse. Sandweed. Yarr.

SPEC. CHAR. Leaves whorled, with minute membranous stipulas at their base. Stalks of the fruit reflexed. Seeds more or less margined.

Engl. Bot. t. 1535.—Curt. Fl. Lond. t. 307.—Fl. Dan. t. 1033.—Linn. Sp. Pl. p. 630.—Huds. Fl. Angl. (2nd edit.) p. 202.—Willd. Sp. Pl. v. ii. pt. 1. p. 818.—Sm. Fl. Brit. v. ii. p. 502.; Engl. Fl. v. ii. p. 336.—With. (7th ed.) v. ii. p. 567.—Gray's Nat. Arr. v. ii. p. 652.—Lindl. Syn. p. 48.—Hook. Brit. Fl. p. 215.—Maer. Man. Brit. Bot. p. 32.—Lightf. Fl. Scot. v. i. p. 243.—Sibth. Fl. Oxon. p. 148.—Ahbot's Fl. Bedf. p. 102.—Thom. Pl. Berw. p. 48.—Davies' Welsh Bot. p. 44.—Purt. Midl. Fl. v. i. p. 223.—Relh. Fl. Caut. (3rd ed.) p. 186.—Hook. Fl. Scot. p. 144.—Grev. Fl. Edin. p. 104.—Fl. Devon. pp. 78 & 183.—Johnst. Fl. Berw. v. i. p. 102.—Winch's Fl. of Northumbl. and Durh. p. 30.—Walker's Fl. of Oxf. p. 130.—Bab. Fl. Bath. p. 8.; Supp. p. 71.; Prim. Fl. Sarn. p. 15.—Dick. Fl. Abred. p. 39.—Irv. Lond. Fl. p. 170.—Luxf. Reig. Fl. p. 41.—Mack. Catal. Pl. Irel. p. 45.; Fl. Hibern. p. 44.—Sperguldria arvensis, Don's Gen. Syst. of Gard. and Bot. v. i. p. 425.—Alsine spergula dicta major, Bauh. Pin. p. 251.—Ray's Syn. p. 351.—Saginæ spergula, Johnson's Gerarde, p. 1125. Engl. Bot. t. 1535.—Curt. Fl. Lond. t. 307.—Fl. Dan. t. 1033.—Linn. Sp. Pl.

LOCALITIES .- In cultivated fields and gardens, on a sandy soil; not uncommon.

Fig. 1. Calyx.-Fig. 2. Corolla.-Fig. 3. A Petal.-Fig. 4. Stamens and Pistil.-Fig. 5. A separate Stamen.—Fig. 6. Germen, Styles, and Stigmas.—Fig. 7. A Capsule.—Fig. 8. The same with the valves open.—Figs. 9 and 10. Seeds.—Fig. 11. Receptacle.—Fig. 12. One of the Joints of the Stem.—All magnified; figs. 9 and

^{10,} highly so.

From spargo, to scatter; from the seed being so widely dispersed. Hooker.

See folio 152, a.

Annual.-Flowers in June and July.

Root small, tapering, fibrous. Stems several, from 6 to 12 inches long, either nearly upright, or decumbent, moderately branchcd, jointed, leafy; nearly cylindrical, clothed, more or less, with spreading glandular hairs, especially the upper part, the lower part smooth, and almost naked. Branches terminated by a forked, divaricated, downy, vicid paniele. Leaves narrow, strap-shaped, somewhat fleshy, convex on the upper surface, furrowed on the under, smooth, or clothed more or less with short, projecting, bristly hairs; of 2 bundles from each joint, spreading in a whorled manner. Stipulas very short, membranous, 2 at the base of each whorl; joints swollen. Peduncles (flower-stalks) from half an inch to an inch or more in length, cylindrical, slender, downy, vicid, single-flowered, spreading, with a small, membranous bractea, at their base; strongly reflexed as the fruit ripens. Calyx downy; sepals egg-shaped, blunt, with membranous margins. white; petals egg-shaped, a little longer than the calyx. Stamens usually 10, sometimes 5, or some intermediate number. Styles constantly 5. Capsule longer than the calyx, and opening more than half way down into 5 entire valves. Secds many, roundish, slightly compressed, black, dotted with raised points, varying in the breadth of the margin or border.

This plant is a native throughout Europe; also in North America on the banks of the Columbia and about Quebec. In the Netherlands and in Germany the seed of this plant is sown on cornstubbles, to supply a bite for sheep during Winter. It may be sown and reaped in eight weeks, either in Autumn or Spring. to enrich the milk of cows, so as to make it afford excellent butter, and the mutton fed on it is said to be preferable to that fed on turnips. Hens eat Spurrey greedily, and it is supposed to make them lay a great number of eggs, whether in hay, or cut green, or in pasture. Von Thare observes, it is the most nourishing in proportion to its bulk, of all forage, and gives the best flavoured milk and butter. It has been recommended to be cultivated in England, but it is not likely that such a plant can ever pay the expense of seed and labour in this country, even on the poorest soil. We have fortunately, however, better plants for such soils, such as Rie, Peas, Tares or Vetches, Buckwheat, Carrots, &c. The inhabitants of Finland and Norway make bread of the seeds of the Spurrey, when their crops of corn fail. See Don's Gen. Sust. of Gard. and Bot.; Martyn's Mill. Dict., &c.

The flowers are very sensible to atmospheric changes. Dr. Johnston, in his excellent Flora of Berwick-upon-Tweed, says, We have seen a field, whitened with its numerous blossoms, have its appearance quite changed by the petals closing on a black cloud passing over, and discharging a few drops of rain.

Spergula pentandra of Engl. Bot. t. 1536, is considered to be not specifically distinct from S. arvensis.

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PINUS*.

Linnean Class and Order. Mone'cia†, Monade'lphia‡.

Natural Order. Conyferæ, Linn.—Juss. Gen. Pl. p. 411.—
Sm. Gram. of Bot. p. 190.—Lindl. Syn. p. 240.; Introd. to Nat.
Syst. of Bot. p. 247.—Rich. by Macgilliv. p. 546.—Loud. Hort.
Brit. p. 535.; Arb. et Frutic. Brit. p. 2103.—Mack. Fl. Hibern. p.
258.—Hook. Brit. Fl. (4th edit.) p. 420.—Pineales; sect. Abietinæ; type, Pinaceæ, Burn. Outl. of Bot. v. i. pp. 492 & 494.

GEN. CHAR. Sterile Flowers (see figs. 1 & 2). Catkin (fig. 2.) deciduous, of numerous, naked, spreading stamens (fig. 2, b.) connected by one common stalk. Calyx none. Corolla none. Filaments (see fig. 3.) very short. Anthers (fig. 3.) upright, wedge-shaped, of 2 cells, bursting lengthwise, crowned with a membranous crest.— Fertile Flowers (see figs. 4 & 5). Cathin (fig. 5.) egg-shaped, or roundish, of numerous, imbricated, close, rigid, permanent, 2flowered, 2-lipped scales (fig. 6). Calyx none. Corolla none. Germens (ovules) 2, at the base of each scale within. Style, 1 to each germen. Stigma prominent, obtuse, evanescent. Strobile (fig. 7.) egg-shaped, or between cone-shaped and eggshaped in most species, consisting of hard woody truncated scales, excavated at the base for the reception of the seeds. Seeds (fig. 8.) oval, each crowned with a large membranous wing, shorter than the scale .-- Leaves in groups of 2, 3, or 5; each group arising out of a scaly sheath.

The sterile flowers in crowded racemose catkins, with peltate scales, bearing 2, 1-celled, sessile anthers; the fertile flowers in egg-shaped catkins, with closely imbricated, 2-flowered scales; the cones with oblong, blunt, woody scales, with an angular termination; and the leaves in groups of 2, 3, or 5; will distinguish this from other genera, destitute of calyx and corolla, in the same

class and order.

One species British.

PI'NUS SYLVE'STRIS. The Wood Pine. The Scotch Pine. Wild Pine-tree. Scotch Fir.

SPEC. CHAR. Leaves rigid, in pairs. Cones between egg-shaped and cone-shaped, acute; young ones stalked, recurved, as long as the leaves, from 1 to 3 together. Crest of the anthers very small.

Engl. Bot. t. 2460.—Lamb. Pin. v. i. t. 1.—Woody. Med. Bot. t. 207.—Mill. Illustr. t. 82.—Loud. Arb. et Frutic. Brit. p. 2153. plates 312, 312 a, and 313; and figs. 2043 to 2056.—Hunt. Evcl. Silva, p. 262, with a plate.—Johnson's Gerarde, p. 1356.—Linn. Sp. Pl. p. 1418.—Huds. Fl. Angl. (2nd ed.) p. 423.—Wild. Sp. Pl. v. iv. pt. 1. p. 494.—Sm. Fl. Brit. v. iii. p. 1031.; Engl. Fl. v. iv. p. 159.—With.

The Pine is the badge of the clan M'GREGOR.

"Hail to the chief who in triumph advances!

Honoured and blessed be the evergreen Pine!

Long may the tree in his banner that glances,

Flourish the shelter and grace of our line!"—LADY OF THE LAKE,

† See folio 83,

† See folio 1#6.

Fig. 1. A Staminiferous Catkin.—Fig. 2. Same magnified; a, bracteas; b, anthers.—Fig. 3. An Anther, magnified.—Fig. 4. A Pistilliferous Catkin.—Fig. 5. Same magnified.—Fig. 6. A separate Scale of ditto.—Fig. 7. A Cone.—Fig. 8. A Seed.

^{*} From pin or pen, which, in Celtic, means a crag or stony mountain, still so ealled in Wales: (as Ben in Seotland): where the Pine delights to grow, "moored in the rifted rock." Hooker.

(7th ed.) v. iii, p. 815.—Gray's Nat. Arr. v. ii. p. 223.—Lindl. Syn. p. 241.—Hook. Brit. Fl. p. 411.—Macr. Man. Brit. Bot. p. 219.—Lightf. Fl. Scot. v. ii. p. 587.—Thornt. Fam. Herb. p. 783, with a figure.—Mcm. Caled. Hort. Society, v. i, p. 121.—Davies' Welsh. Bot. p. 91.—Hook. Fl. Scot. p. 275.—Grev. Fl. Edin. p. 204.—Winch's Fl. of Northumb. and Durh. p. 62.—Lindl. Fl. Med. p. 553.—Diek. Fl. Abred. p. 56.—Irv. Lond. Fl. p. 113.—Mack. Catal. of Pl. of Irel. p. 83.; Fl. Hib. p. 258.—Pinus sylvestris foliis brevibus glaucis, conis parvis albentibus, Ray's Syn. p. 442.—Pinus sylvestris vulgaris, Bauh. Ilist. v. i. pt. 11. lib. 9. p. 253, with a figure.

LOCALITIES.—In many parts of the Highlands of Scotland, where it constitutes vast natural forests.

Tree.—Flowers in May and June.

A straight, hardy, long-lived, evergreen tree, from 60 to 80, or sometimes 100 feet high, with horizontal branches at regular intervals, disposed in whorls of from 2 to 4 together, sometimes 5 or 6. Leaves in pairs, sheathed at the base, rigid, from an inch and a half, to two inches and a half long, strap-shaped, narrow, minutely serrulated, striated, smooth, blunt, with a small white point; slightly concave on the upper surface, convex on the under; of a light bluish green when young, becoming of a dark green afterwards. Sterile Cathins (figs. 1 & 2.) in a whorl or whorls at the extremity of the branch of the preceding year, with several chafy, scaly, concave bracteas at their base. Anthers sessile, with a profusion of pollen, which has sometimes been carried to a distance by the wind in such quantities, where this tree abounds, as to alarm the ignorant with the notion of its raining sulphur. Fertile Cathins (fig. 4.) solitary, globular, variegated with purple and green, with several serrated, pointed, scaly bracteas (see fig. 5). The first year, after impregnation, the young fruit becomes lateral, stalked, and reflexed, green, of an egg-shaped figure; and the second year ripens into egg-shaped, pointed, hard, tessellated but unarmed, woody cones, whose dry scales finally gape and allow the winged seeds to escape. Cotyledons from 5 to 7.

The Scotch Fir is truly wild in the Highlands of Scotland, where, Dr. Greville says, "it is a magnificent tree, and differing as much from the formal ornament of the plantation, as the hardy mountaineer from the scdentary mechanic of a crowded city." It is also a native of Denmark, Norway, and Sweden. It appears to have been formerly abundant in Ireland, as trunks of this species, of very large dimensions, are often found in bogs, sufficiently fresh for roofing houses. Next to the Larch this species affords the most valuable and useful timber. Two varieties of it afford the white and red deal of commerce. It also yields abundance of turpentine, resin, pitch, and tar. The resin is procured by wounding the tree, the tar by distilling the wood, especially that of the roots. The bark has been used with much success in tanning; and in the northern parts of Europe it is made into a wretched substitute for bread. An infusion of the buds has been recommended as an antiscorbutic; as are the fresh cones boiled, which also are a principal ingredient in spruce beer. The resinous roots are dug out of the ground in many parts of the Highlands of Scotland, and being divided into small splinters, are used by the inhabitants instead of candles, the younger individuals of a family holding them in turn. Fishermen make ropes of the inner bark.

of the inner bark.

The following fungi are parasitic on different parts of the tree. On the leaves, Sphæria pindstri; and Æcídium Pini. On the branches, Cendngium ferruginósum; and Sphæria gelatinosa. On the fallen concs, Peziza conígena; and Hystérium conígenum. On the bark, Phacídium Pini. On the dead wood, Peziza chrysócoma; Stíctis paralléla; Dacrymy'ces stillátus; Agy'rium rufum; Sphæ'ria strigósa; Sph. sordária; Sph. pilifera; Lophium mytilinum; and Lóphium elátum. See Hook. Brit. Fl. v. ii. pt. 11.

Every particular that is known respecting the history, properties, uses, propagation, culture, statistics, &c. &c. of the Scotch Fir, is given in the Arboretum et Fruticetum Britannicum, by Mr. Loudon; a work of inestimable value to every one who is at all interested in the subject of which it treats.

Mariana Service



TRAGOPO'GON*.

Linnean Class & Order. Syngene'sia†, Polyga'mia, Equalis‡.

Natural Order. Compo'sitæ§, (Linn.), tribe, Cichora'ce.e,
Lindl. Syn. pp. 140 & 156.; Introd. to Nat. Syst. of Bot. pp. 197
and 201.—Loud. Hort. Brit. pp. 520 & 521.—Mack. Fl. Hibern.
pp. 142 & 159.—Hook. Brit. Fl. (4th ed.) p. 410.—Cichora'ce.e,
Juss. Gen. Pl. p. 168.—Sm. Gr. of Bot. p. 120.—Synanthe're.e,
Rich. by Macgilliv. p. 454.—Syringales; subord. Asteros.e;
type, Cighorace.e; Burn. Outl. of Bot. pp. 900, 901, & 935.

GEN. CHAR. Involucrum (common calyx) (fig. 1, a.) simple, of several spear-shaped equal scales, ranged alternately in two rows, all connected at the base, permanent. Corolla (fig. 1, b.) compound, imbricated, uniform; florets (see fig. 2.) numerous, all perfect, uniform, strap-shaped, blunt, with 5 teeth; the outer once rather the longest. Filaments (see fig. 3.) 5, from the tube, hair-like, very short. Anthers (see figs. 2 & 3.) in a cylindrical tube. Germen (sec figs. 2 & 3.) inversely egg-shaped. Style (sec figs. 2 & 3.) thread-shaped, as long as the anthers. Stigmas (see figs. 2 & 3.) 2, revolute. Seed-vessel none, except the converging, pointed, common calyx (see fig. 4.), about as long as the seeds, tumid at the base, finally reflexed. Seeds (see fig. 5, a.) one to each floret, oblong, angular, longitudinally striated, rough, tapering at each end, crowned by the orbicular, flattish seed-down (pappus), consisting of about thirty spreading feathery rays, on a long awl-shaped stalk. Receptacle (see fig. 5, b.) flat, naked, minutely cellular.

The simple *involucrum* of several equal scales; the longitudinally striated *seeds*; the stalked, feathery *pappus*; and the naked *receptacle*; will distinguish this from other genera in the same class

and order.

Two species British.

TRAGOPO'GON PRATE'NSIS. Mcadow Goat's-beard. Yellow Goat's-beard. Joseph's Flower. Star of Jerusalem. Noon-tide. Go-to-bed at Noon.

SPEC. CHAR. Involucrum about as long as the florets. Leaves undivided, keeled, smooth, tapering; dilated and somewhat undulated at the basc. Peduncles cylindrical.

Engl. Bot. t. 434.—Fl. Dan. t. 906.—Willd. Sp. Pl. v. iii. pt. 111. p. 1492.—Sm. Fl. Brit. v. ii. p. 812.; Engl. Fl. v. iii. p. 337.—With. (7th edit.) v. iii. p. 880.—Lindl, Syn. p. 161.—Hook. Brit. Fl. p. 337.—Macr. Man. Brit. Bot. p. 141.—Thom. Pl. Berw. p. 78.—Davies' Welsh Bot. p. 73.—Purt. Midl. Fl. v. ii. p. 364.—Relh. Fl. Cant. (3rd ed.) p. 315.—Hook. Fl. Scot. p. 226.—Grev. Fl. Edin. p. 165.—Fl. Devon. pp. 128 & 154.—Johnst. Fl. Berw. v. i. p. 172.—Winch's Fl. of Northumbl. and Durh. p. 50.—Walker's Fl. of Oxf. p. 220.—Pamp. Pl. of Battersea, p. 14.—Bab. Fl. Bath. p. 29.; Prim. Fl. Sarn. p. 57.—Dick. Fl. Abred. p. 49.

Fig. 1. A Flower; a. the involucrum or common calyx; b. the corolla.—Fig. 2. A single Floret.—Fig. 3. Stamens and Pistil, shewing the 5 stamens, with their filaments, and united anthers; and the germen, pappus, style, and stigmas.—Fig. 4. The enlarged involucrum, enclosing the seeds.—Fig. 5. The involucrum with the scales reflexed, after seeds are ripe; a. a seed; b. the receptacle.

^{*} From tragos, Gr. a goat; and pogon, Gr. beard; from the beautifully bearded fruit. Hooker.

+ See folio 21, note †.

\$ See folio 27, a.

— Luxf. Reig. Fl. p. 66.—Cow. Fl. Guide, p. 51.—Mack. Fl. Hibern. p. 165.— Trogopogon pratense, Linn. Sp. Pl. p. 1109.—Huds. Fl. Angl. (2nd cd.) p. 335.— Gray's Nat. Arr. v. ii, p. 431.—Lightf. Fl. Scot. v. i. p. 426.—Bryant's Fl. Diwtet. p. 48.—Sib. Fl. Oxon. p. 236.—Abb. Fl. Bedf. p. 168.—Irv. Lond. Fl. p. 150.— Mack. Catal. Pl. of Irel. p. 69.—Trogopogon luteum, Ray's Syn. p. 171.—Johnson's Gerarde. p. 735.

LOCALITIES.—Meadows and pastures; not uncommon in ENGLAND; more rare in SCOTLAND, and IRELAND.

Biennial.-Flowers in June.

Root tapering, and, like every other part of the plant, abounding with milky juice, which is rather bitter, but not acrid. Stem from 1 to 2 feet high, upright, much branched, round, smooth, leafy. Leaves alternate, long and very narrow; taper-pointed, the upper part often flaccid, or curled; channelled on the upper side, keeled on the under, their base dilated, somewhat sheathing, and generally more or less undulated; those from the root rather the broadest. Flowers large, two inches wide, bright yellow, solitary, on terminal, cylindrical peduncles, closing before noon, except in very cloudy weather. Scales of the involucrum spear-shaped, pointed, flat, equal; in two series, as long as, or often longer than, the longest florets. Outer florets much longer than the rest, all 5-toothed at the apex. Anthers brown or purplish. Pollen yellow. Germen with a tuft of hair at the summit. Seeds large, curved, furrowed, rugged, light brown. Pappus radiated, and delicately feathered, on a long pedicel.

The proportional lengths of the involucrum and the corolla appear to be very variable in different individuals of this species. Mr. WOODWARD says, that in specimens gathered in Huntingdonshire the involucrum was always exactly equal to the outer florets, but that in Norfolk it invariably exceeded them. Mr. STACKHOUSE remarks, that the involucrum in Cornish plants is always much longer than the florets; and Mr. BABINGTON has found it with the involucrum twice the length of the florets, at Bath, Cambridge, Shrewsbury, and in Needwood Forest. In the neighbourhood of Oxford, the involucrum in this species is much longer than the florets, in many instances twice as long. This being the case, the proportional lengths of the involucrum and corolla, as Mr. BABINGTON justly observes, appear to be useles as specific characters in

this genus.

Tragopogon pratensis is a native of Europe and Siberia. In some parts of Eugland it is called Buck's-beard, from the German; and Go-to-bed-at-noon, from the eircumstance of the flowers closing about that time. The Rev. Mr. Plymley, in his General View of the Agriculture of Shropshire, however, says that he observed it to shut its flowers about nine o'clock in the morning, on clear days, in Leicestershire; and that he was informed by an accurate Botanist in Edinburgh, that its flowers remain open till twelve, in clear weather, in that part of Scotland. According to the observations of Linnæus, the flowers open about three o'clock in the morning, and close between nine and ten. Before the stems shoot up, the roots, boiled like Asparagus, have the same flavour, and are nearly as nutricious. The spring shoots, when about three or four inches high, are also eaten by some in the same manner.

Cows, sheep, and horses eat it; swine devour it greedily; goats are not fond'

Æcidium Tragopogonis, Pers.; Æ. Cichoracearum, Johnston's Fl. of Berwick, v. ii. p. 205, is sometimes parasitic on the stems, leaves, and involucrums of this plant.

The species usually cultivated in gardens for culinary purposes, is the Tragopogon porrifolius, (Salsafy of the Gardens,) also a native of Britain; but it is, by

some, considered inferior to the common one,



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RHODI'OLA*.

Linncan Class and Order. DIŒ'CIA+, OCTA'NDRIA ...

Natural Order. Crassula'ceæ, De Cand.—Lindl. Syn. p. 63.; Introd to Nat. Syst. of Bot. p. 161.—Rich. by Macgilliv. p. 514.—Loud. Hort. Brit. p. 516.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 97.—Mack. Fl. Hibern. p. 59.—Cra'ssulæ, Juss. Dict. des. Sc. Nat. v. xi. p. 369.—Succule'ntæ, Linn.—Vent. Tabl. v. iii. p. 271.—Sempervivæ, Juss. Gen. Pl. p. 307.—Sm. Gram. of Bot. p. 162.—Rosales; sect. Crassulinæ; type, Crassulaceæ; Burn. Outl. of Bot. v. ii. pp. 614, 730, & 735.

GEN. CHAR. Sterile Flower (fig. 1). Calyx (see fig. 2.) concave, in 4 deep, equal, spreading, permanent segments. Corolla (see figs. 2 & 3.) of 4 spear-shaped, bluntish, moderately spreading, deciduous petals, much longer than the calyx, and alternate with its segments. Nectaries 4, glandular, notched, opposite to the petals, shorter than the calyx. Filaments (see fig. 2.) 8, awl-shaped, equal in length to the petals. Anthers roundish. Rudiments of 4 germens, more or less perfect, with abortive styles and stigmas.—Fertile Flower (see figs. 4 & 5). Calyx as in the sterile flower. Corolla less developed, variable in length. Nectaries as in the sterile flowers. Stamens none. Germens (see fig. 5.) 4, superior, upright, oblong, triangular, each terminating in a short, thick, simple style (see fig. 7). Stiyma blunt. Capsules (fig. 6.) 4, pointed, bursting at the inner margin, of 1 cell. Seeds roundish, numerous, ranged along the inner margin, at each side.

The sterile flower with a 4-parted catyx, 4 petals, and 4 notched glands; and the fertile flower with a 4-parted catyx, 4 petals, 4 notched glands, 4 germens, and 4 many-seeded capsules; will distinguish this from other genera in the same class and order.

One species British.

RHODI'OLA ROSEA. Rose-smelling Rose-root. Mountain Rose-root. Rose-wort.

SPEC. CHAR. Stem simple. Leaves oblong, serrated at the tip, smooth, glaucous. Root rather tuberous. Flowers corymbose, usually of 4 petals.

Engl. Bot. t. 508.—Fl. Dan. t. 183.—Linn. Sp. Pl. p. 1465.—Huds. Fl. Angl. (2nd ed.) p. 434.—Willd. Sp. Pl. v. iv. pt. 11. p. 807.—Sm. Fl. Brit. v. iii. p. 1082.; Engl. Fl. v. iv. p. 246.—With. (7th ed.) v. ii. p. 505.—Hook. Brit. Fl. p. 437.—Lightf. Fl. Scot. v. ii. p. 619.—Hook. Fl. Scot. p. 289.—Johnst. Fl. Berw. v. i. p. 220.—Winch's Fl. of Northumb. and Durh. p. 64.—Trevel. Faroe 181. p. 8.—Ivv. Lond. Fl. p. 291.—Mack. Catal. Pl. of Irel. p. 86.; Fl. Hibern. (Addenda) p. 255.—Sedum Rhodiola, Lindl. Syn. p. 64.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 114.—Macr. Man. Brit. Bot. p. 88.—Sedum dioicum, Gray's Nat. Arr. v. ii. p. 539.—Anacampseros radice rosam spirante major, Ray's Syn. p. 269.—Rhodia radix, Bauh. Pin. p. 286.—Johns. Gerarde, p. 532.—Merr. Pin. p. 104.

Figs. 1, 2, & 3. Sterile Flowers.—Figs. 4 & 5. Fertile Flowers.—Fig. 6. Fruit.—Fig. 7. A Germen, and Gland.

^{*} From rodon, Gr. a rose; in reference to the fragrance of the roots. Don.

† See folio 143, note +.

‡ See folio 42, note +.

LOCALITIES.—In the fissures of alpine rocks, or cliffs, near the sea.—Cumberland; Keswick. Ravine of the Screes, near Wastwater: B. G. Various rocks of the Scawfell Mountains, Grass-moor, Grange Fell, Helvellyn, &c.: Mr. H. C. Watton, in N. B. G. On Cross Fell, with Epilobium alsinifolium: N. B. G.—Durham; Maes Beek: B. G.—Lancashire; On the moist rocks in Farnfells, in the bottom of Lancashire, on the highest Fell towards Hawkshead: Merrett. On a mountain called the Old Man, at Coniston Water Head: Mr. Woodward. Near Mr. Rigge's Slate Quarries at Coniston: Mr. Ackson.—Northumberland; At the head of Cauledge Bourn, among the Cheviots: W. C. Trevelyan, Esq. Henhole, Cheviot: N. B. G.—Westmoreland; Maze Beck Scar near Appleby: B. G. High-street, Westmoreland, on the edge of a precipice called Blea Water Crag: Mr. Gough. Striden edge, Helvellyn: N. B. G.—Yorkshire; On Ingleborough and Hardknot, plentifully: Rav. Ingleborough, 1833: N. B. G. Pennighaut Hill: N. B. G.—W Al. E. Caernarvonshire; On Snowdon: Rav. Rocks of Cwm Idwel, and Iscolion dûon. Abundant on the ridge of rocks immediately above Llyn Fynnon Lâs: B. G. Moist rocks about the Lake on the right-hand ascending Snowdon from Llanberris. Rocks at Twll du, on Cwm Idwel: N. B. G.—Merionethshire; Cader Idris: Rav.—SCOTLAND. Argylesh. Glencoe; Locheil Moors: N. B. G.—Berwicksh. On Fastcastle; on rocks between Lamberton and Burnmouth; at the foot of a deep glen about a mile south of Fastcastle: Dr. Jounstone, in Fl. of Berw. Cliffs at St. Abb's Head: N. B. G.—Forfarsh. Rocks on the Clova Mountains, in many places: N. B. G.—Inverness-shire; Fall of Foyers, and Craigue; Rocks below the snow on Ben Nevis; Red Cairn: N. B. G.—Ise of Man: Mr. MACNAB, in N. B. G.—Orkney Isles; Hoy Hill: N. B. G.—Perthsh. Ben Lawers; Killin Mountains: N. B. G.—Ross-shire; Ben Wevis: N. B. G.—Sterlingsk. Ben Lomond: N. B. G.—Ross-shire; Ben Wevis: N. B. G.—Sterlingsk. Ben Lomond: N. B. G.—Swtherland; On the hills about Inchnadamff; and on Ben Layhal: N. B. G.—IRELAND. Wet rocks on Bran

Perennial.—Flowers in May and June.

Root large, thick, somewhat woody, much divided at the crown; when recently dried, the whole has an agreeable scent, which has been compared to that of Roses. Stems several, herbaceous, simple, upright, cylindrical, smooth, sea-green, leafy, from 6 to 12 inches high. Leaves numerous, scattered, sessile, somewhat imbricated, egg-shaped, or oblong, entire, except towards the apex where they are generally bluntly toothed, fleshy, sea-green, sometimes tipped with purple. Flowers yellow, numerous, terminating the stem in a corymbose manner; they are said to be sometimes perfect, but are usually staminiferous on one plant, and pistilliferous on another. Stamens longer than the corolla. Anthers bluish. In the pistilliferous flowers the petals are often very imperfectly devoloped. Styles very short, pointing outwards, permanent.

Mr. TREVELYAN observed this plant in the Faroe Islands, growing at all elevations, but largest in clefts of rocks near the sea; on the summits of mountains it was very dwarf, plants in flower being sometimes not more than one inch in height. (Veg. & Temp. of Far. Isl.)

As well as of Europe it is also a native of Siberia, and of North America, on the Arctic sea shore, and Islands; of Newfoundland and Labrador; and on the Rocky Mountains, Kotzebue's Sound, &c.

The root is sweetish when dried; in this state a fragrant water may be distilled from it. The inhabitants of the Faroe Islands use it as a remedy for scurvy. In Greenland they eat it as garden-stuff. A cataplasm of the fresh roots, applied to the forehead, is said to relieve the head-ache, and to heal malignant ulcers. Goals and sheep are said to eat the plant; but cows and swine to refuse it.—It is the badge of the Highland clan Gunn.



CALLITRICHE*.

Linnean Class and Order. MONŒCIA+, MONA'NDRIA‡.

Natural Order. CALLITRICHI'NEÆ, Link.—Lindl. Syn. p. 242; Introd. to Nat. Syst. of Bot. p. 176 .- Mack. Fl. Hibern. p. 238 .-HALORA'GEE, Dr. R. Brown.-Loud. Hort. Brit. p. 514.-Don's Gen. Syst. of Gard. and Bot. v. ii. p. 700.—Hook. Brit. Fl. (4th ed.) p. 405.—NAIADES, Juss. Gen. Pl. p. 18.—Sm. Gr. of Bot. p. 66.—QUERNEALES; sect. HIPPURINÆ; type, HIPPURIDAGEÆ; subty-CALLITRICHIDÆ; Burn. Outl. of Bot. v. ii. p. 523, 576, & 577.— INUNDATÆ, Linn.

Flowers usually monæcious, sometimes perfect. GEN. CHAR. Calyx none. Corolla (see figs. 1 & 3.) when present, (it is wanting in some species,) of 2 oblong, pointed, opposite, equal petals (bracteas of some authors).—Sterile Flower (fig. 1). Filament 1, hair-like, gradually elongated. Anthers terminal, kidney-shaped, 1-celled, opening by a transverse suture.—Fertile Flower (figs. 2 Germen (see fig. 2.) superior, 4-lobed. Styles hair-like, spreading, with pointed stigmas. Capsule (see fig. 3.) 4-lobed, lobes laterally compressed, indehiscent, with four 1-seeded cells.

The pointed stigmas; and the solitary, 4-lobed, indehiscent capsule, of four 1-seeded cells; will distinguish this from other genera in the same class and order.

Three species British.

Spring Water-Starwort. CALLITRICHE VERNA. headed Water Chickweed. Water Fennel Vernal Stargrass.

SPEC. CHAR. Peduncles very short, with 2 bracteas (? petals) at their base. Fruit apparently sessile, regularly 4-angled, each lobe bluntly keeled at the back.

FI. Dan. t. 129.—Linn. Sp. Pl. p. 6.—Willd. Sp. Pl. v. i. pt. I. p. 28.—Sm. Engl. Fl. v. i. p. 10.—With. (7th ed.) v. ii. p. 6.—Lindl. Sym. p. 243.—Hook. Brit. Fl. p. 384.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 704.—Maer. Man. Brit. Bot. p. 80.—Lightf. Fl. Scot. v. i. p. 70.—Abbot's Fl. Bedf. p. 1.—Davies' Welsh Bot. p. 2.—Purt. Midl. Fl. v. i. p. 49.—Johnst. Fl. Rerw. v. i. p. 3.—Winch's Fl. of Northumb. and Durh. p. 58.—Walker's Fl. of Oxf. p. 2.—Bab. Fl. Bath. p. 17.; Prim. Flor. Sarn. p. 36.—Dick. Fl. Abred. p. 53.—Irv. Lond. Fl. p. 200.—Luxf. Reig. Fl. p. 78.—Cow. Fl. Guide, p. 25.—Mack. Fl. Hibern. p. 239.—Callitriche aquatica, Engl. Bot. t. 722.—Hook. Fl. Lond. t. 127.—Huds. Fl. Angl. (2nd ed.) p. 439, a & β.—Sm. Fl. Brit. v. i. p. 8, a & β.—Sibth. Fl. Oxon. p. 2, a & β.—Relh. Fl. Cant. (3rd ed.) p. 4, a & β.—Hook. Fl. Scot. p. 259.—Grev. Fl. Edin. p. 188.—Fl. Devon. pp. 145 & 141.—Mack. Catal. Pl. of Irel. p. 7.—Callitriche pallens, Gray's Nat. Arr. v. ii. p. 555.—Stellaria, Ray's Syn. p. 289.; and Stellaria minor et repens, ibid. p. 289.

LOCALITIES .- In ditches, ponds, and slow streams; common.

Annual.—Flowers in April and May.

Root of very long slender fibres. Stems slender, thread-shaped, branched, minutely pustulate, varying in length according to their situation in deep or shallow water. Leaves opposite, connate, very

Fig. 1. A Staminiferous Flower,—Fig. 2. A Pistilliferous one.—Fig. 3. A Capsule, divided transversely.— $All\ magnified.$

^{*} From kallos, Gr. beautiful; and thrix, Gr. hair. WITHERING. † See folio 83, note +.

‡ See folio 49, note +.

variable both in shape and size; simple, entire, minutely dotted; the uppermost ones crowded, stalked, elliptic, or inversely egg-shaped, 3-nerved above the base, spreading in a star-like form at the summit of each branch, and floating on the surface of the water; lower ones distant, spatulate, sometimes strap-shaped and single-ribbed. Flowers axillary, solitary, sessile, usually separated, minute, and inconspicuous; staminiferous ones consisting of a single stamen, with a yellow anther, on a slender white filament; and 2 minute petals or bracteas, which are thick, flat, and bowed inwards at the edge like a crescent (see fig. 1.); pistilliferous ones of 2 similar petals or bracteas; 2 hair-like, reflexed styles; and a roundish, 4-lobed, 4-celled capsule.

Dr. Macreight, in his very excellent and useful little book, the "Manual of British Botany," has described five varieties of this species; viz.

" a. vulgaris. (D. C.) All the leaves elongato-obovate. C. verna (Fl. Dan.) β. intermedia. (D. C.) Lower leaves linear, obtuse or emarginate; the

upper ones oval. C. dubia. (Thuillier.)

" γ. stellata. (Hor.) All the leaves oval. Stems short. C. æstivalis. (Thull.)

" δ. cæspitosa. (Schult.) All the leaves oval, rigid, and small. Stem short, stellato-patent. In moist scarcely inundated places.

" e. tenuifolia. (Pers.) All the leaves linear; upper once 3-nerved."

The 2 crescent-shaped petals or bracteas (figs. 1 & 3); and the sessile, regularly 4-angled, bluntly keeled fruit; will distinguish this, in all its varieties, from the two other British species.

"These plants," says Professor Burnett, "do not possess any notable properties; they are innoxious, and perhaps slightly nutritious, as they are fed on by wild-ducks; and, growing abundantly in damp places, are said, by the large quantities of carbonic acid and carburetted hydrogen they absorb, to tend much towards purifying the air of marshes, and rendering that in water respirable by fish and other aquatic animals."

The essential character of the Natural Order Callitrichine, of which the present genus is the only known example, is thus given by Professor Lindley.

"Flowers usually unisexual, monœcious, naked, with 2 fistular coloured bracteæ. Stamen single; filament filiforme, furrowed along the middle; anther reniform, 1-celled, 2-valved; the valves opening fore and aft. Ovarium solitary, 4-cornered, 4-celled; ovules solitary, peltate; styles 2, right and left, subulate; stigmas simple points. Fruit 4-celled, 4-seeded, indehiscent. Seeds peltate; embryo inverted in the axis of fleshy albumen; radical very long, curved, superior; cotyledons very short. Small aquatic herbaceous plants, with opposite, simple, entire leaves. Flowers axillary, solitary, very minute."

Dr. Lindley remarks, "the affinity of this order to other Dicotyledones appears to be of precisely the same nature as that borne by Lemna to Monocotyledones. They each exhibit the lowest degree of organization known in their respective classes."

This very distinguished Botanist fully assents to Dr. Brown's opinion of its affinity with *Haloragea*, (see folio 376, a.) although he does not place it in the same order. See *Introd. to Nat. Syst. of Bot.* p. 176.

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HELIA'NTHEMUM*.

Linnean Class and Order. POLYA'NDRIA +, MONOGY'NIA.

Natural Order. CISTI'NEE, D. C. Prod. v. i. p. 263.—Lindl. Syn. p. 36.; Introd. to Nat. Syst. of Bot. p. 151.—Loud. Hort. Brit. p. 500.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 297.—Mack. Fl. Hibern. p. 33.—Hook. Brit. Fl. (4th edit.) p. 398.—CISTA'CEE, Loud. Arb. et Frutic. Brit. p. 316.—CISTEE, Rich. by Macgilliv. p. 503.—CISTI, Juss. Gen. Pl. p. 294.—Sm. Gram. of Bot. p. 156.—ROSALES; subord. RHEADOSE; sect. CISTINE; subsect. CISTIANE; type, CISTACEE; Burn. Outl. of Bot. v. ii. pp. 614, 784, 792, 798, & 801.—ROTACEE, Linn.

GEN. CHAR. Calyx (see fig. 3.) of 3 equal, concave, permanent, partly membranous sepals, with 2 occasional external ones, which are usually smaller than the other 3, very rarely larger. Corolla (see fig. 1.) of 5, equal, roundish, spreading petals, with short claws (fig. 2.), much larger than the calyx. Filaments (see fig. 3.) numerous, hair-like, shorter than the corolla. Anthers small, oval. German (see fig. 4.) superior, nearly globular. Style (see fig. 4.) undivided, various in length and direction. Stigma capitate. Capsule (see figs. 5 & 6.) angular, invested with the closed permanent calyx (see fig. 5.), of 3 valves, with a narrow dissepiment, or seminiferous nerve in the middle of each (see fig. 6). Seeds (see fig. 7.) several, small, angular, smooth. Albumen mealy. Embryo uncinately-inflexed.

The calyx of 3 equal sepals, or of 5, of which the 2 outer ones are smaller; the corolla of 5 petals; the capitate stigma; and the capsule of 3 valves; will distinguish this from other genera in the same class and order.

Five species British.

HELIA'NTHEMUM VULGA'RE. Common Sun-Rose. Common Rock-Rose. Dwarf Cistus. Little Sun-flower.

SPEC. CHAR. Stem somewhat shrubby, procumbent, stipuled. Leaves opposite, egg-shaped or oblong, nearly flat, green above. Racemes terminal, bracteated. Sepals 5, pilose, the inner furrowed and scariose at the margin, the 2 outer spear-shaped, fringed. Style bent at the base, somewhat club-shaped at the apex. Seeds blackish.

Ilelianthemum vulgare, Park, Theatr. Bot. pp. 655 and 656.—Ray's Syn. p. 341.—Wills. Syn. p. 224.—Gært. Fruct. v. i. p. 371. t. 76.—Gray's Nat. Arr. v. ii. p. 662.—Lindl, Syn. p. 37.—Hook. Brit. Fl. p. 258.—Loud. Arb. et Frut. Brit. p. 343.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 311.—Macr. Man. Brit. Bot. p. 24.—Grev. Fl. Edin. p. 121.—Bab. Fl. Bath. p. 6.—Dick. Fl. Abred. p. 41.—1rv. Lond. Fl. p. 182.—Luxf. Reig. Fl. p. 46.—Mack. Fl. Hibern. p. 34.—Helianthemum anglicum luteum vel album, Johnson's Gerarde, p. 1282.—Cistus Helianthemum, E. B. t. 1321.—Curt. Fl. Lond. t. .—Fl. Dan. t. 101.—Linn. Sp. Pl. p. 744.—Huds. Fl. Angl. (2nd ed.) p. 233.—Willd. Sp. Pl. v. ii, pt. 11. p. 1209.—Sm. Fl. Brit. v. ii. p. 575.; Engl. Fl. v. iii. p. 26.—With. (7th ed.) v. iii.

* From helios, Gr. the sun; and anthos, Gr. a flower; because the flowers open with the rising of the sun in the morning, and the petals fall off with the setting of the sun in the evening. Don.

† See folio 51, note †.

Fig. 1. Corolla.—Fig. 2. A Petal.—Fig. 3. Calyx and Stamens.—Fig. 4. Germen, Style, and Stigma.—Fig. 5. Capsule.—Fig. 6. Same opened.—Fig. 7. A Seed, magnified.

p. 660.—Lightf, Fl. Scot. v. i. p. 281.—Sibth, Fl. Oxon. p. 167.—Abb, Fl. Bedf, p. 117.—Thomp. Pl. Berw. p. 56.—Davies' Welsh. Bot. p. 54.—Purt. Midl. Fl. v. i. p. 253.—Relh. Fl. Cant. (3rd. ed.) p. 216.—Hook, Fl. Scot. p. 170.—Fl. Dev. pp. 91 & 186.—Johnst. Fl. Berw. v. i. p. 120.—Winch's Fl. of Northumberl, and Durh. p. 36.—Walker's Fl. of Oxf. p. 151.—Perry's Pl. Varvic. Selectæ, p. 45.—Cow. Fl. Guide, p. 27.—Mack. Catal. Pl. Irel. p. 52.

LOCALITIES. - On dry and hilly pastures, on a chalky or gravelly soil; not un-

common.

Small Shrub.—Flowers from May to September.

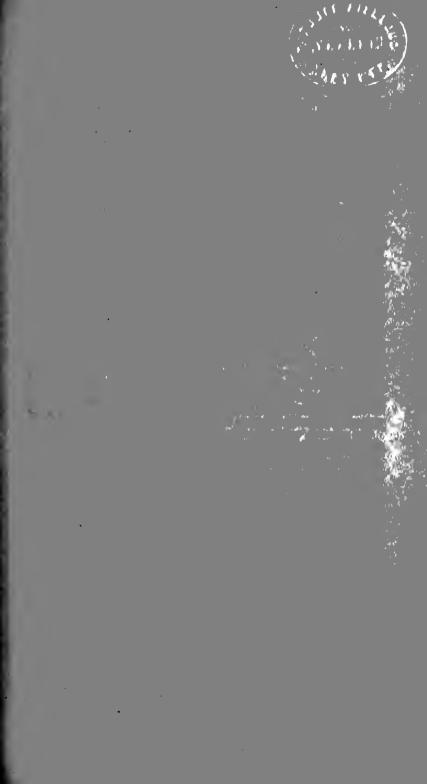
Root woody. Stems several, somewhat shrubby, procumbent, or slightly ascending, round, smooth below, more or less hairy above, often reddish, leafy. Leaves simple, opposite, on very short stalks, egg-shaped, or elliptic oblong, entire, green on the upper surface, and somewhat hairy; paler and downy on the under, the margins scarcely revolute. Stipulas 4 at each joint of the stem, spear-shaped, fringed. Flowers yellow, in simple, terminal, loose racemes, rather large and showy, expanding only in sunshine, and scarcely lasting a day. Bracteas spear-shaped, smooth, fringed, one at the base of each pedicel. Pedicels (partial flower-stalks) slender, hoary, various in direction, more reflexed as the fruit advances to maturity. Calyx of 5 sepals, the 3 inner of which are egg-shaped and bluntish, with strong, green, bristly ribs, connected by a smooth, or scarcely at all downy, somewhat transparent, dotted membrane; the two outer very small, spear-shaped, pointed, green, smooth, except their margins, which are fringed with numerous bristly hairs. Petals nearly circular, entire, yellow, with sometimes a fulvous base. Stamens numerous, irritable; when touched they retire from the style, and lie down in a spreading form on the petals; but this can be seen only in calm warm weather, and when the flowers have not been ruffled by insects, or otherwise disturbed. Germen globose, downy. Capsule downy, with very narrow dissepiments, or imperfect partitions. Seeds several, rather large, egg-shaped, pointed, of a reddish-brown, or blackish colour.

This sometimes, though very rarely, occurs with white flowers; and also, occasionally, with rose-coloured ones. In gardens the flowers are sometimes double. Sir W. J. Hooker, and Dr. Withering, consider Cistus tomentosus and Cistus surrejanus of Smith, as varicties of the present species. The former differs in the leaves, flower-stalks, stipulas, and calyx, being much more hoary and downy than in the true species; the latter in the petals being narrow, spear-shaped, and

lagged.

Mr. Curtis observes, that "though the present species cannot vic with those which are the produce of warmer climates, yet it is one of the most ornamental of our native plants, and admirably well calculated to decorate a rock or dry bank, especially if its several varieties, with white, rose, and lemon-coloured flowers be intermixed. It is lardy, easily propagated either by seeds or cuttings, and continues, for the greatest part of the Summer, to put forth daily a multitude of new blossoms."

The Natural Order Cisti'n E.E., of which the present genus is the only British example, is composed of dicotyledonous shrubs or herbaceous plants with usually entire, opposite or alternate, stipulate or exstipulate leaves. The calyx consists of 5 unequal sepals, the 3 inner of which are largest, and twisted in the bud. The corolla is 5-petalled, and twisted in the bud. The stamens numerous. The ovary distinct, and 1- or many-celled, with a thread-shaped style, and simple stigma. The capsule is of from 3 to 5, rarely 10 valves. And the seeds are numerous; with a spiral or curved embryo, in a mealy albumen.





Mathematical & Se

Pub dby W.Baxler, Botanic Garden Oxford 1849

MALA'XIS*.

Linnean Class and Order. Gyna'ndria+, Mona'ndria. Natural Order. ORCHI'DEÆ, Linn.—Juss. Gen. Pl. p. 64.— Sm. Gram. of Bot. p. 81.; Engl. Fl. v. iv. p. 3.—Lindl. Syn. p. 256; Introd. to Nat. Syst. of Bot. p. 262.—Rich. by Macgilliv. p. 412.— Loud. Hort. Brit. p. 536.—Mack. Fl. Hibern. p. 274.—Macr. Man. Brit. Bot. p. 224.—Hook. Brit. Fl. (4th ed.) p. 425.—PALMARES; order, Musales; sect. Orchidinæ; type, Orchidaceæ; Burn.

Outl. of Bot. v. i. pp. 391, 437, 458, & 461.

GEN. CHAR. Perianthium (calyx and corolla) (figs. 1 & 2.) superior; sepals (fig. 1, c, c, c.) 3, herbaceous, egg-shaped, spreading, permanent. Petals (fig. 1, d, d.) 2, herbaceous, reflexed, smaller than the sepals. Lip (nectary) (fig. 1, e.) uppermost, undivided, without a spur, much smaller than the sepals, and similar in size and shape to the petals. Anther (see fig. 3, c.) terminal, deciduous, of two close cells, depositing the four waxy pollen-masses upon the Germen (fig. 3, a.) inversely egg-shaped, angular. stigma. (column) (see fig. 4.) very short, convex at the back, flat or concave in front. Stigma close beneath the anther in front, obsolete. Capsule elliptic-oblong, with 3 or 6 ribs. Seeds numerous, minute, each with a lax chaffy tunic.

The spreading sepals; the reflexed petals, smaller than the sepals; the spurless, entire, reversed lip; the very short column; and the two pairs of waxy pollen-masses; will distinguish this from

other genera in the same class and order.

One species British.

MALA'XIS PALUDO'SA. Marsh Malaxis. Marsh Bog-orchis. Marsh Twayblade. Marsh Ophrys.

SPEC. CHAR. Stalk with 5 angles. Leaves about 4, oval, very concave, papillose at the tip. Lip entire, concave, acute, half the

length of the sepals.

Swartz in Stockh. Trans. for 1789, p. 127. t. 6. f. 2. Engl. Bot. t. 72.-Ilook. Swartz in Stockn. Trans. 107 1789, p. 127. t. 0, 1. 2. Engl. Bot. t. 12.—1100k, Fl. Lond. t. 197.—Willd. Sp. Pl. v. iv. pt. 1. p. 91.—Sun. Fl. Brit. v. iii. p. 940.; Engl. Fl. v. iv. p. 47.—With. (7th ed.) v. ii. p. 44.—Gray's Nat. Arr. v. ii. p. 214.—Lind. Syn. p. 263.—Hook. Br. Fl. p. 379.—Maer. Man. Brit. Bot. p. 229.—Brown in Ait. Hort. Kew. (2nd ed.) vol. v. p. 208.—Relh. Fl. Cant. (3rd. ed.) p. 366.—Hook. Fl. Scot. p. 255.—Rev. G. E. Smith's Pl. of S. Kent, p. 59.—Winch's Fl. of North. & Durh. p. 57.—Irv. Lond. Fl. p. 113.—Mack. Cat. Pl. of Irel. p. 77.; Fl. Hib. p. 281.

—O'phrys paludósa, Linn. Sp. Pl. p. 1341.—Fl. Dan. t. 1234.—Rose's Elem. App. p. 450.—Y. f. 3.—Huds. Fl. Arg. (2nd ed.) p. 389.—With (2nd ed.) p. 389. — Ophrys patitaosa, Linn. Sp. Ft. p. 1341.—Ft. Dan. t. 1234.— Nose's Eigm. App. p. 450. t. 2. f. 3.— Illids. Fl. Angl. (2nd ed.) p. 389.— With. (2nd ed.) v. ii. p. 989.— Lightf. Fl. Scot. v. i. p. 525.— Abb. Fl. Bedf. p. 196.— O. patistris, Huds. Fl. Angl. (1st ed.) p. 339.— Ophris bifolia patustris nostras, Pluk. Phyt. t. 247. f. 2.; O. bifolia minor patustris, Pluk. Almag. 270.— Orchis minima bulossa, D. Preston. Ray's Hist. v. iii. p. 587.; Dill. in Ray's Syn. p. 378.— Bifolium patustre, Park. Theatr. Bot. p. 505.— Ray's Syn. 2nd ed. p. 243.; 3rd ed. p. 385.

Fig. 1. Front view of a Flower; a. bractea; b. germen; c. c. c. sepals; b. b. petals; e. lip.—Fig. 2. Back view of a Flower.—Fig. 3. Side view of ditto, with the sepals and petals removed; a. germen; b. lip. before the flower is expanded; c. anther.—Fig. 4. Back view of the Column and Anther.—Fig. 5. The two pairs of Pollen-masses.—All more or less magnified.—Figs. 2, 3, 4, & 5, reduced from Professor Lindley's magnificent work, intitled "Illustrations of Orchidaceous Plants," from drawings by FRANCIS BAUER, Esq. F. R. S., &c. &c.

^{*} From malakis, Gr. softness; from the tender nature of the plant. + See folio 8, note +.

Localitis.—In spongy bogs in many places, but apt to be overlooked on account of its small size.—Bedfordsh. Potton Marshes: Rev. C. Arbot.—Cambridgesh. Gamlingay Bogs: Rev. R. Reliian. On Hinton Moor: B. G.—Durham; In bogs on Eglestone Moor: Teesoale. On moors south of Wolsingham: Mr. Backhouse.—Hants; Bere Forest, near Wickham: Dr. Pulteney. Walton Heath, East Leigh, near Emsworth: Mr. Barton.—Herts; On the low wet grounds between Hatfield and St. Albans: Parkinson.—Kent; Divers places in Romney Marsh: Parkinson. At Hurst Hill, Tunbridge Wells: Mr. Dubois.—Lancash. Between Rusland Chepel and Thwaite Moss, in Furness Fells: Mr. Jackson.—Norfolk; Felthorpe Bog near Norwich: Rev. H. Bryant. On Cawston Heath: Mr. Crowe. Belton Common; Ashby Warren, abundantly: Hist. Yarm.—Northumberland; On the Muckle Moss near Thorngrafton: N. J. Winch, Esq. in N. B. G.—Staffordsh. Norton Bog; and Cannock Wood: Mr. Bagot.—Sussex; Near the Tilgate Ponds; Chiltington Moors; and Hurst Hill, near Tunbridge Wells: Bot. Sus. N. B. G.—Yorksh. West of Middleton: Mr. Robson.—WALES. Caernarvonsh. In a field where a wood has formerly stood, called Coed y Tù Dù, near Llanberris: Mr. Griffith.—SCOTLAND. Fifesh. Marshes near St. Andrew's: Lioht-voot, Fl. Scot.—Forfarsh. In the low parts of the county; and on the summis of the Clova Mountains: Mr. Don, in Agr. of Angus. Glen Clova: W. Brands, in N. B. G. A mile or two above the kirk of Clova, on the opposite side of the river: Mr. Watson, in N. B. G.—Kinross-shire; Rills near the foot of Dunglow: Mr. D. Stewart.—Perthsh. A little to the East of Ben Vorlich, and a little above the house of Ardvorlich: Mr. Arnott.—Ross-shire; South side of a stream above Castle Leod; and near Freevater: N. B. G.—Sutherland; Behind Oikel Inn; road-side above Invershin; and at Ben Loyal: N. B. G.—Wigtonsh. Mull of Galloway: N. J. Wincu, Esq.—IRELAND. In a marshy spot above Powerscourt Waterfall, and at Tittour, county of Wicklow, as well as in the southern and nothern counties, but never in great quantities: Mr. Ma

Perennial.—Flowers from July to September.

Root bulbous, curved, often stalked, and throwing out radicles from the base. Scape (stalk) central, from 2 to 5 inches high, upright, angular, smooth, mostly naked. Leaves 3 or 4, eggshaped, or inversely egg-shaped, various in length, very concave, rather glaucous, almost upright, blunt; their apex rough with little bulbous gemme. Flowers in a slender upright spike, or raceme; very small, pale green, reversed, the upper sepal (fig. 1, c.) being turned downward, the two others (fig. 1, c, c.), with the small entire lip (fig. 1, c.), upward; petals (fig. 1, d, d.) turned back (see fig. 2). Capsules nearly globular. Bracteas (see fig. 1, a.) spear-shaped, small, membranous, about as long as the pedicels.

This very curious and interesting little plant is indigenous to Russia, Sweden, and Germany, as well as Britain; and is the smallest of all our native Orchideæ. It has been clearly ascertained, by the Rev. Professor Henslow, of Cambridge, that the minute papillæ at the apex of the leaves, are little bulbous gemmæ, and as such he has described and figured them in Loudon's Magazine of Natural History, v. i. pp. 441 & 442. This fact appears to have been suspected previously, in 1824, by Mr. W. Wilson, who further finds an hybernaculum formed in the Autumn among the decayed leaves. Thus independant of seeds, this curious little plant has one mode of perpetuating itself, and another of increase. See HOOKER's Brit. Fl.

The Drawing for the accompanying Plate was made from the largest out of several specimens which were kindly communicated to me by Mr. BARTON, of East Leigh, near Emsworth, Hants, July 19, 1840.



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CICU'TA *.

Linnean Class and Order. PENTA'NDRIA +, DIGY'NIA.

Natural Order. Umbelli'fer. ‡, Juss. Gen. Pl. p. 218.—Sm. Gram. of Bot. p. 132.—Lindl. Syn. p. 111; Introd. to Nat. Syst. of Bot. p. 4.—Rich. by Macgilliv. p. 463.—Loud. Hort. Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 235.—Mack. Fl. Hibern. p. 113.—Hook. Brit. Fl. (4th ed.) p. 408.—Umbellatæ, Linn.—Rosales; sect. Angelicin. ; type, Angelicace. ; subtype, Angelicid. ; Burn. Outl. of Bot. v. ii. pp. 614, 700, 773, and 774.

Flowers (see fig. 2.) uniform, perfect, and nearly GEN. CHAR. regular. Calyx (see fig. 1.) a 5-toothed, somewhat leafy margin. Corolla (fig. 2.) of 5, inversely heart-shaped petals, with an inflexed point. Filaments (see fig. 2.) 5, thread-shaped, spreading, about as long as the corolla. Anthers roundish. Germen (see fig. 1.) inferior, hemispherical, compressed, ribbed. Styles (see figs. 1 & 3.) 2, thread-shaped, short, upright, scarcely tumid at the base; subsequently elongated, spreading, and permanent. Stigmas blunt, almost capitate. Floral Receptacle depressed, withering. Fruit (see fig. 3.) roundish, contracted at the sides, double. Carpels with 5 flattish, equal ribs, of which the 2 lateral ones form a margin. Channels (interstices) with single vitte, which fills them, even in a dried state, but then less elevated than the ribs. Commissure (juncture or point of union) furnished with 2 vitta; vitta under a loose membrane. Carpophore (receptacle of the fruit) 2-parted. Transverse section of seed nearly round. Universal Involucrum of few leaves, or wanting; partial of many leaves. Howers white.

The roundish fruit, compressed at the sides, of 2, almost globose carpels, with 5 broad, flattish, equal ribs, and evident single vittæ in the interstices; the 5-toothed, leafy calyx; and the inversely heart-shaped petals, with an inflexed point; will distinguish this from other genera in the same class and order.

One species British.

CICU'TA VIRO'SA. Poisonous Cowbane. Water Cowbane, Long-leaved Watercress. Long-leaved Water Hemlock.

SPEC. CHAR. Trunk of root hollow, divided into cells by transverse dissepiments; fibres disposed in whorled fascicles. Leaves twice ternate; segments spear-shaped, serrated. Umbels opposite the leaves, and terminal.

Engl. Bot. t. 479.—Fl. Dan. t. 208.—Woodv. Med. Bot. Suppl. t. 268.—Linn. Sp. Pl. p. 356.—Huds. Fl. Angl. (2nd edit.) p. 122.—Willd. Sp. Pl. v. i. pt. 11 p. 1445.—Sm. Fl. Brit. v. i. p. 322.; Engl. Fl. v. ii. p. 62.—With. (7th edit.) v. ii. p. 385.—Gray's Nat. Arr. v. ii. p. 507.—Lindl. Syn. p. 123.—Hook. Brit. Fl. p. 129.—Maer. Man. Brit. Bot. p. 97.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 275.—Lightf. Fl. Scot. v. i. p. 164.—Abbot's Fl. Bedf. p. 65.—Pert. Midl. Fl. v. ii. p. 748.—Relh. Fl. Cant. (3rd ed.) p. 122.—Thornt. Fam. Herb. p. 315, with

Fig. 1. Germen, Calyx, and Pistils.—Fig. 2. A Flower.—Fig. 3. A Fruit.—Fig. 4. Transverse section of ditto.—All magnified.

^{*} So called in reference to the internode or space between the joints; as in a reed or Pan's pipe. Withering.

† See folio 48, note †.

‡ See folio 235, a.

π figure.—Hook. Fl. Scot. p. 92.—Grev. Fl. Edin. p. 66.—Johnst. Fl. Berw. v. ñ. p. 277.—Winch's Fl. of Northumberl. and Durh. p. 19.—Lindl. Fl. Med. p. 34.—Pamp. Pl. of Battersea, p. 6.—Bab. Fl. Bath. p. 21.; Prim. Fl. Sarn. p. 42.—Irv. Lond. Fl. p. 197.—Mack. Catal. Pl. of Irel. p. 29.; Fl. Hibern. p. 124.—Cicuta aquatica Gesneri, Bauh. Hist. v. iii. pt. 11. lib. 27. p. 175., with a figure.—Sium

alterum Olusatri facie, Johns. Ger. p. 256 .- Ray's Syn. p. 212.

Localities.—In ditches, and about the margins of river and lakes; not common.—Bedfordsh. Oakley Springs: Rev. C. Annor.—Cambridgesh. Fens between Ely and Prickwillow, in a creek over against the Tiled House on Rinney Bank: Rev. R. Relhan. In the river about a mile from Prickwillow Bridge: B. G.—Cheshire; Pits near the Little Moor, a mile from Prickwillow Bridge: B. G.—Cheshire; Pits near the Little Moor, a mile from Stockport; Pond two miles from Norwich, on the road to Chester; and Brereton Mere: B. G. On the side of a pit, in a field in the township of Pool, near Nantwich: Rev. Mr. Ghetton.—Cumberland; Keswick; banks of the Irthing at Walton, and Irthington: B. G.—Herefordsh. Hereford, on the river-banks, in the Walks: N. B. G.—Kent; In running water at Canterbury and Ashford: B. G.—Lincolnsh. In the East Fen, chiefly on the edges of the narrow channels, called Rows, which communicate the deeps with each other: B. G.—Middlesex; Near Hounslow; Denham; and in one of the ponds near the road at Hayes, three miles from Uxbridge: B. G.—Norfolk; In the river above Norwich; Old Walsingham; about Yarmouth, not uncommon; near Filby Broad; and on Hoveton Common: B. G.—Northunb. In a bog at Learmouth, near Cornhill: N. B. G.—Notts: In Nottingham Park: B. G.—Shropsh. In Mr. Slaney's Pool Dam at Hatton; and in a rivulet near Bildwas: B. G. Whiston Marsh: H. Bibwille. Esq. Ellesmere Mere: Rev. A. Bloxam. Oxen Pool, near Shrewsbury, &c.: N. B. G.—Somersetsh. In some boggy grounds near Shipton Mallet; and in Buttle Moor, plentifully: B. G. In the Canal near Bathampton: Fl. Bath.—Staffordsh. Kingston Pool near Stafford: B. G.—Suffolk; Near Temple Bridge, Cavenham; banks of the Waveney between Eeccles and St. Olave's; Oulton Broad; Oulton Dike; Bradwell; and elsewhere about Yarmouth, not uncommon; side of Fritton Broad: B. G.—Surrey; Battersea: B. G.—In Worcestershire: N. B. G.—Torksh. By the river at Scroby Bridge near Bawtry; and Newsham Carr near Thirk: B. G. Near Northallerton: M. N. H. v. iii, p. 168.—SCOT LAND. In the cou

Perennial.—Flowers in July and August.

Root tuberous, hollow, divided into cells by transverse partitions; fibres cylindrical, slender, in whorled fascicles. Stem from 2 to 4 feet high, hollow, leafy, branched, furrowed, smooth, often reddish, its lower part divided by transverse partitions into large cells. Leaves on long petioles, twice ternate, bright green; leaflets spearshaped, pointed, sharply and deeply serrated, from 1 to 2 inches long, more or less remarkably decurrent; those of the upper leaves very narrow. Umbels upright, large, many-rayed, partly terminal, partly opposite to the leaves; umbellules of very numerous slender rays. Partial involucrum of many small, pointed leaves. Flowers white; petals small, equal, much inflexed; anthers and styles reddish. Fruit compressed, roundish, smooth, ribbed, almost black.

This plant is a native through all Europe and Siberia, also of North America, between lat. 549. and 640. It is one of the rankest of our vegetable poisons, producing effects similar to those of hydrocyanic acid. Numerous instances are recorded of its fatality to the human species, in a treatise upon it by Weffer, Hallen, and others, and in the Phil. Trans. by Dr. Watson. Strong emetics, administered as soon as possible, are the most approved antidote. It is a certain and fatal poison to cows; yet goats devour it greefily, and with impunity. Horses and sheep also eat it with safety. In the moist pastures of Sweden it used to occasion a yearly plague amongst horned cattle, until the cause was pointed out, and a preventitive suggested by Linnaus. See Lachesis Lapponica, or a Tour in Lapland, translated from the MS. Journal of Linnaus, by Sir J. E. Shith (1811), v. ii. pp. 136—140, where a full account of the plant, and of the disease, is given.

The accompanying Plate is from a very correct and beautiful Drawing, kindly presented to me by DAWSON TUNKER, ESG. F. R. S., &c. of Yarmouth; to whom I am also indebted for specimens of the plant. I have also been favoured with fine specimens of it from the Rev. Mr. GRLTTON, of Nantwick, Cheshire.

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RHYNCHO'SPORA *.

Linnean Class and Order. TRIA'NDRIA +, MONOGY'NIA.

Natural Order. CYPERA'CEE, Juss.—Lindl. Syn. p. 278.; Introd. to Nat. Syst. of Bot. p. 304.—Rich. by Macgilliv. p. 392. Loud. Hort. Brit. p. 541.-Mack. Fl. Hibern. p. 318.-Hook. Brit. Fl. (4th ed.) p. 427.—Cyperoidez, Juss. Gen. Pl. p. 26.—Sm. Gr. of Bot. p. 68.—Cyperales; sect. Cyperine; type, Scirpacee; Burn. Outl. of Bot. v. i. pp. 354 & 357.—CALAMARIÆ, Linn.

GEN. CHAR. Spikelets in corymbose stalked heads, terminal and axillary; each spikelet (see fig. 1.) of 2, or few flowers, the glumes (bracteæ, LINDL.) (see fig. 2.) 1-valved, imbricated on all sides, concave, pointed, the lower ones gradually smaller and empty. Bristles (Perianth of Brown) (see figs. 3 & 4.) several, toothed (see fig. 5.), shorter than the glume beneath. Filaments (see fig. 3.) 1, 2, or 3. Anthers strap-shaped, upright. Germen (see figs. 4 and 6.) superior, roundish, small. Style (see figs. 4 & 6.) awlshaped, bifid, dilated at the base, permanent, forming a hard, conical, compressed, pale beak to the convex, otherwise obtuse, Seed.

The few-flowered spikelets; the 1-valved glumes, imbricated on all sides, the lower ones smaller and empty; the perianth of several, toothed bristles; and the seed beaked with the dilated, hardened, permanent base of the style; will distinguish this from other genera with inferior, glumaceous flowers, in the same class and order.

Two species British.

RHYNCHO'SPORA ALBA. White Beak-rush. White-headed B)g-rush.

SPEC. CHAR. Spikelets in a compact corymb, shorter than the outer bracteas. Stamens 2. Bristles with reflexed teeth. Leaves narrow-strap-shaped.

Vahl. Enum. Pl. v. ii. p. 236.—Sm. Engl. Fl. v. i. p. 52.—With. (7th ed.) v. ii. p. 109.—Gray's Nat. Arr. v. ii. p. 72.—Lindl. Syn., 1st ed. p. 279.; 2nd ed. pp. 279 and 332.—Hook. Brit. Fl. p. 20.—Maer. Man. Brit. Bot. p. 248.—Winch's Fl. of Northumbl. and Durh. p. 3.—Walker's Fl. of Oxf. p. 12.—Loud. Mag. Nat. Hist. v. viii. p. 676.—Murr. North. Fl. p. 27.—Irv. Lond. Fl. p. 88.—Mack. Fl. Hibern. 319.—Schænus albus, Linn. Sp. Pl. p. 65.—Engl. Bot. t. 985.—Huds. Fl. Angl. (2nd edit.) p. 16. excl. var. β.—Willd. Sp. Pl. v. i. pt. 1. p. 267.—Sm. Fl. Brit. v. i. p. 46. excl. var. β.—Lightf. Fl. Scot. v. i. p. 87.—Abbot's Fl. Bedf. p. 10.—Purt. Midl. Fl. v. i. p. 62.—Relh. Fl. Cant. (3rd ed.) p. 21.—Hook. Fl. Scot. p. 16.—Fl. Devon. pp. 6 & 115.—Perry's Pl. Varvic. Selectæ, p. 5.—Mack. Catal. Pl. of Irel. p. 10.—Cyperus minor palustris hirsutus, paniculis albis paleaceis. Ray's Syn. p. 427.—Gramen junceum leucanthemum, Johnson's Gerarde, lib. i. chap. 22. n. 7. p. 30*.—Gramen cyperoides palustre, leucanthemum. Scheuchz. Agr. p. 503, t. 11. f. 11.

but too near in generic character.

† Sec folio 56, note †,

Fig. 1. A Spikelet, and Bractea.—Fig. 2. A Glume.—Fig. 3. A single Floret.—Fig 4. Bristles, Germen, Style, & Stigmas.—Fig. 5. A Bristle, highly magnified.—Fig. 6. Germen, Style, and Stigmas.—Fig. 7. A Sced.—All magnified.

^{*} From rygchos, Gr. a beak; and spora, Gr. a seed; the permanent base of the style forming a beak to the seed. Witherino.

Sir W. J. Hooker remarks, that this is very different in habit from Eleocharis.

Localities.—On turfy bogs, and in wet pastures; not common.—Berks; Bullmarsh Heath; and bog in Windsor Great Park.—Beds; Ampthill Moor; Potton; and Aspley.—Bucks; East Burnham Common; and Iver Heath.—Cambridgesh. Borgy ground near Gamlingay Park.—Cheshire; On almost all the bogs.—Cornwall; On the heath by Kynance Cove; and between St. Michael's and Gorse Moor.—Cumbl. Side of the river Gelt; by Crummock-water; bogs at the foot of Hellvellyn, &c. and Ullock Moss.—Devon; Bovey Heathfield; Woodbury Hill; and Shute Common —Dorset; Common on the bogs of Waieham. Canford, and Poole heaths.—Durham; On Beamish Moor.—Hants; Common about Southampton.—Kent; On all the bogs on Ashdown and Waterdown Forests, and on the bog near Mr. Sloper's.—Lancash. On all the moors of this county.—Leicestersh. Between Beacon Hill, and the Outwoods on Charley Forest.—Norfolk; Belion Bog, in plenty. Felthorp Bogs; and near Ileydon.—Northumbl. Prestwick Car; and on the Muckle Moss.—Salop; Bomere Pool; and Twyford Vownog, near West-felton.—In Somersetshire.—Staffordsh. In Chartley Moss.—Suffolk; Belton.—Surrey; Bagshot Ileath; between Chobham and Shrubs-hill; in a large bog between Wickham and Croydon; and on Shirley and Esher Commons.—Sussex; On the great bogs on Ashdown Forest; Chailey Common; Tilgate and St. Leonard's Forests; Aberley Wild Brooks, and other logs near Washington Common; also in Waterdown Forest.—Warwicksh. On Birmingham Ileath; near Packington; and in a hog below Coleshill Pool.—Westmorelund; Common in this county.—Yorksh. Near Richmond; Lakeby Car; Terrington Car; and Black Moor, between Leeds and Harrowgate.—WALES. Caernarvonsh. Bog west of Dolbadern Castle, near Llanberris; peat-loos among the hills, not rare.—Debighsh. By the side of the old road from Capel Cerig to Llancost, in an enclosure above Pencraig House.—Flintsh. Boggy fields between Plasnewydd in Rhyl and Rhyd Maish near Rhyddlan.—Glamorgansh. Cromlyn Bog, near Swansea.—SCOTLAND; more or less frequeut in the counties of Argyle; Dumbarton; Dumfries; Elgin; Forfa

Perennial.—Flowers in June, July, and August.

Root moderately creeping. Culms (stems) triangular, very slender, from 6 to 12 inches high, smooth, striated leafy. Leaves sheathing at the base, upright, very narrow, strap-shaped, tapering upwards, with a bluntish point, keeled, their margins and keels, as well as those of the bracteas, and also the angles of the flower-stalks, rough. Spikelets of flowers white or whitish, collected into a kind of corymbose cluster, so as to form a level surface at the top. . Bracteas variable in length, sometimes much longer than the cluster. In each of the spikelets (see fig. 1.) are two florets, both fertile; with from 8 to 11 bristles with reflexed teeth, much longer than the germen (see figs. 4 & 5.), and decidedly placed outside the stamens; from which circumstance Dr. R. Brown considers them as the true perianth of the flower. Filaments (see fig. 3.) 2, scarcely broader than the bristles. Anthers strap-shaped, upright. Fruit (fig. 7.) inversely egg-shaped, compressed, distinctly marginal, tapering at the base into a short stalk. Style (see figs. 4 & 6.) permanent, thin, pellucid, often greenish, without teeth, dilated at the base, not articulated, nor so broad as the seed, and readily distinguished from it by its colour and texture. See Hook. Brit. Fl.; Loud. Mag. Nat. Hist. v. viii. p. 675.; and Murray's Northern Flora.

Specimens of this plant were obligingly communicated to me in September, 1839, by Mr. Thomson, of Crow-hall Mill, near Heydon Bridge, Northumberland; and my kind friend, Mr. W. Willis, of St. Austell, Cornwall, has lately favoured me with living specimens of it from Gorse Moor. From one of these specimens the Drawing for the accompanying Plate was made.



ANTHY'LLIS*.

Linnean Class and Order. DIADE'LPHIA+, DECA'NDRIA.

Natural Order. Legumino'sæ, Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Macgilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259.—Loud. Hort. Brit. p. 509.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—Mack. Fl. Hibern. p. 73.—Hook. Brit. Fl. (4th edit.) p. 404.—Legumina'ceæ, Loud. Arb. Brit. p. 561.—Papiliona'ceæ‡, Linn.—Rosales; sect. Cicerinæ; subsect. Lotianæ; type, Lotaceæ; subtype, Lotidæ; Burn. Outl. of Bot.

pp. 614, 638, 642, & 644.

GEN. CHAR. Calyx (fig. 1.) of 1 sepal, tubular, egg-oblong, inflated, pubescent, with 5 small, unequal, marginal teeth, permanent. Corolla (see fig. 2.) papilionaceous, of 5 petals, with strapshaped claws the length of the calyx; standard (fig. 3.) longest, reflexed at the sides; wings (fig. 4.) 2, oblong, a little shorter than the standard; keel (fig. 5.) of 2 narrower petals, compressed, slightly cohering at the tips. Filaments (see fig. 6.) 10, united into one cylinder, finally splitting along the upper edge, their separate extremities curved upwards. Anthers small, roundish. Germen oblong. Style (see fig. 7.) awl-shaped, ascending. Stigma blunt. Legume (fig. 8.) small, roundish, or oblong, a little turgid, concealed within the enlarged inflated calyx, of 1 cell and 2 valves. Seeds (fig. 10.) 1 or 2, roundish-kidney-shaped, smooth.

The inflated, 5-toothed calyx; the corolla with the standard, wings, and keel, nearly equal in length; and the roundish, 1- to 3-seeded legume, inclosed in the permanent calyx; will distinguish this from other genera, with monadelphous stamens, in the same

class and order.

One species British.

ANTHY'LLIS VULNERA'RIA. Common Wound-wort. Common Kidney-vetch. Ladies' Finger. Lamb-toe.

SPEC. CHAR. Stems herbaceous. Leaves pinnate, unequal; terminal leaslets much the largest. Heads of Flowers in pairs.

Engl. Bot. t. 104.—Fl. Dan. t 988.—Linn. Sp. Pl. p. 1012.—Huds. Fl. Angl. (2nd ed.) p. 313.—Wildd. Sp. Pl. v. iii. p. tir. p. 1013.—Sm. Fl. Brit. v. ii. p. 759.; Engl. Fl. v. iii. p. 269.—Wildl. (7th ed.) v. iii. p. 834.—Lindl. Syn. p. 78.—Hook. Brit. Fl. p. 320.—Macr. Man. Brit. Bot. p. 52.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 166.—Lightf. Fl. Seot. v. i. p. 387.—Sibth. Fl. Oxon. p. 221.—Abbot's Fl. Bedf. p. 155.—Thom. Pl. Berv. p. 72.—Davies' Welsh. Bot. p. 69.—Purt. Midl. Fl. v. i. p. 331.—Relli. Fl. Cant. (3rd ed.) p. 290.—Hook. Fl. Scot. p. 213.—Grev. Fl. Edin. p. 155.—Fl. Devon. pp. 120 & 174.—Johnst. Fl. of Berw. v. i. p. 159.—Winch's Fl. of Northumb. and Durh. p. 47.—Walker's Fl. of Oxf. p. 206.—Jacob's West Devon and Cornw. Fl.—Perry's Pl. Varv. Selectæ, p. 61.—Bab. Fl. Bath. p. 12.; Prim. Fl. Sarn. p. 24.—Dick. Fl. Abred. p. 48.—Irv. Lond. Fl. p. 179.—Luxf

Fig. 1. Calyx.—Fig. 2. Calyx and Corolla.—Fig. 3. Standard.—Fig. 4. One of the Wings.—Fig. 5. Keel.—Fig. 6. Stamens and Pistil.—Fig. 7. Germen, Style, and Stigma.—Fig. 8. Legume.—Fig. 9. One of the Valves, with the Seed.—Fig. 10. A Seed.—Fig. 11. The summit of one of the Stamens.—Figs. 3, 4, 5, 6, and 11, more or less magnified.

^{*} From anthos, Gr. a flower; and ioulos, Gr. down; in reference to the flowers being usually downy. Don.

+ See folio 77, note +.

\$\frac{1}{2}\$ See folio 117, note \$\frac{1}{4}\$.

Re'g. Fl. p. 63.—Cow. Fl. Guide, p. 21.—Mack. Catal. Pl. of Irel. p. 66.; Fl. Hib. p. 75.—Anthyllis leguminosa, Johnson's Gerarde, p. 1240.—Gray's Nat. Arr. v. ii. p. 597.—Vulneraria rustica, Ray's Syn. p. 325.

LOCALITIES.—In fields and pastures on a chalky or limestone soil; not uncommon.

Perennial.—Flowers from May to August.

Root woody. Stems several, annual, round, clothed more or less with close-pressed hairs, leafy, mostly simple, ascending, about a foot high. Leaves somewhat glaucous, those from the root simple, elliptical, on long petioles, soon disappearing; those on the stems alternate, pinnate, with a terminal elliptical leaflet, and from 3 to 6 pairs of smaller, and more spear-shaped ones; all entire; smooth above, hairy or silky underneath and at the margin. Flowers numerous, sessile, in two dense, roundish, terminal heads, in close contact. Bracteas large, palmate, (fingered), close beneath the heads of flowers. Calyx membranous, whitish, hairy, contracted at the mouth, 2-lipped (see fig. 1). Corolla usually yellow, rarely white, or red. Filaments each with its top distended like a hollow bladder, in form of an inverted pyramid, with the anther fixed in the centre of the base of the pyramid (see fig. 11). Style thickest at the curvature, thinner above and below. Legume (see fig. 8.) on a short pedicle, nearly orbicular, compressed, veiny, smooth, with a solitary Seed.

There is a variety of this plant with a red, and another with a white or cream-coloured flower; the former, which is figured in DILLENIUS' Hortus Elthamensis, t. 320. f. 413., was first observed by Mr. Lhwyd, in Pembrokeshire; and afterwards by DILLENIUS in the Isle of Anglesea, and in the Isle of Man, in 1726. It has since been found in Cornwall, by Mr. Stackhouse; and in Scotland, by Mr. Winch. The Rev. H. Davies says it is very common along the sandy South-west coast of Anglesea, from whence he transplanted it into his garden, where he observed the flowers to alter their colour considerably, and the plant to grow more luxuriant, the second year; and in the third to become entirely the common plant in every respect. Miller says he never found it to alter from seed, though he had cultivated it for many years. Mr. Borrer finds the white flowered variety on the Downs of Sussex; and the Rev. H. Davies found it near the old fortifica-

tion, on Bryn Gwydryn, Anglesea.

LINN HUS observes, that "in Oeland, where the soil is a red calcarious clay, the flowers of Anthyllis vulneraria are red; but that in Gothland, where the soil is white, the flowers also are white." In England they are usually yellow; in

Portugal red.

It is recommended as an excellent pasturage for sheep; and Mr. Young, in the Annals of Agriculture, vol. xv. p. 584, informs us, that it abounds greatly in the best meadows of the Pyrenees; at the same time he says, that its produce is not large. With us the whole plant is dry, and looked upon as astringent; this is owing most probably to its affecting dry calcarious soils; cultivated in a rich soil it would doubtless become more succulent, though it would probably never rival several other leguminous plants.—Cows and goats are said to eat it, and though not in cultivation, Mr. Salisbury considers it well worth attention, as, where it grows naturally, (in calcareous soil.) cows produce better milk, and in greater quantity.

Gener, it seems, first raised the report of the vulnerary properties of this plant, which perhaps, like other soft and downy applications, may on an emergency staunch the blood of rustic wounds, and give nature and a good constitution time to perfect a cure. Three tells us, in his Synopsis Stirpium Hibernicarum, published in 1726, that it was regularly sold in the markets in Ireland, by the name of Stanch, being astringent. A yellow dye may be obtained from it. See Sm. Eng. Fl.; Don's Syst. of Gard. & Bot.; Mill. Dict. by Martyn, &c.





ME'NTHA*.

Linnean Class and Order. DIDYNA'MIA †, GYMNOSPE'RMIA ‡.

Natural Order. LABIA'TÆ §, Juss. Gen. Pl. p. 110.—Sm. Gram. of Bot. p. 99.; Engl. Fl. v. iii. p. 63.—Bentham, in Bot. Regist. (1829).—Lindl. Syn. p. 196.; Introd. to Nat. Syst. of Bot. p. 239.—Rich. by Macgilliv. p. 439.—Loud. Hort. Brit. p. 528.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 665.—Mack. Fl. Hibern. p. 209.—Hook. Brit. Fl. (4th ed.) p. 415.—Verticillatæ of Linnæus.—Syringales; suborder, Primulosæ; sect. Menthinæ; type, Menthaceæ of Labiatæ; subtype, Saturidæ; Burn. Outl. of Bot. v. ii. pp. 900, 958, 968, & 972.

GEN. CHAR. Calyx (fig. 1.) inferior, tubular, upright, with 5 nearly equal marginal teeth, permanent, its mouth naked, or rarely villous inside. Corolla (see figs. 2 & 3.) straight, funnel-shaped, longer than the calyx; limb in 4 deep, slightly spreading, nearly equal segments, the upper one rather the broadest, and nearly entire, or slightly notched. Filaments (see fig. 4.) 4, from the throat of the corolla, awl-shaped, nearly equal, straight, distant, longer or shorter than the limb of the corolla. Anthers of 2 round lobes. Germen (see fig. 5.) superior, 4-lobed. Style (see fig. 5.) thread-shaped, straight, generally longer than the corolla. Stigma prominent, in 2 sharp, spreading, nearly equal segments. Seeds 4, smooth, in the bottom of the calyx, rarely perfected.

The nearly equal corolla; the widely spreading, almost equal stamens; and the smooth seeds; will distinguish this from other genera, with a 5-toothed, nearly regular calyx, in the same class and order.

Nine species British, according to Bentilam, and Lindley, Syn. 2nd ed.; Thirteen according to Smith, and Hooker, and Lindley, Syn. 1st ed.

ME'NTHA HIRSU'TA. Hairy Mint. Water Mint.

SPEC. CHAR. Flowers in heads or whorls. Leaves stalked, egg-shaped, serrated. Calyx clothed with upright hairs. Flower-stalks with recurved ones.

Engl. Bot. t. 447.—Linn. Mant. p. 81.—Hook. Fl. Lond. t. 166.—Huds. Fl. Angl. (1st ed.) p. 223.—Sm. in Tr. Linn. Soc. vol. v. p. 193.—Wild. Sp. Pl. v. iii. pt. 1. p. 78.—Sm. Fl. Brit. v. ii. p. 616.; Engl. Fl. v. iii. p. 78.—With. (7rh ed.) v. iii. p. 702.—Lindl. Syn. p. 200.—Hook. Brit. Fl. p. 270.—Lightf. Fl. Scot. v. ii. p. 1104.—Abbot's Fl. Bedf. p. 127.—Thoms. Pl. Berw. p. 59.—Davies' Welsh Bot. p. 57.—Purt. Midl. Fl. v. i. p. 275.—Relh. Fl. Cant. (3rd ed.) p. 235.—Hook. Fl. Scot. p. 180.—Grev. Fl. Edin. p. 129.—Fl. Devon. pp. 97 & 144.—Johnst. Fl. Berw. v. i. p. 129.—Winch's Fl. of Northumbl. and Durh. p. 39.—Walker's Fl. of Oxf. p. 163.—Bab. Fl. Bath. p. 38.—Dick. Fl. Abred. p. 43.—Iv. Lond. Fl. p. 132.—Luxf. Reig. Fl. p. 49.—Cow. Fl. Guide, p. 37.—Mack. Catal. of Pl. of Irel.

Fig. 1. Calyx.—Fig. 2. Calyx and Corolla.—Fig. 3. Corolla.—Fig. 4. Corolla opened vertically to shew the situation of the Stamens.—Fig. 5. Germen, Style, and Stigma.

^{*} Mentha of Pliny. Minthe, Gr. of Theorheastus. From a nymph of that name, daughter of Cocytus, fabled to have been changed into this herb by Proserrine in a fit of jealousy. Some derive it from mens, the mind. Maryn.

† See folio 31, note †.

\$ See folio 94, a.

p. 54.; Fl. Hibern. p. 213.—Mentha aquatica, Huds. Fl. Angl. (2nd cd.) p. 252. a and β.—Sole Menth. Brit. pp. 23 & 25. t. 10 & 11.—Lightf. Fl. Scot. v. i. p. 305.—Sibth. Fl. Oxon. p. 182.—Abbot's Fl. Bedf. p. 127.—Benth. Lab. p. 176.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 718.—Lindl. Syn. (2nd cd.) p. 200.—Maer. Man. Brit. Bot. p. 178.—Purt. Midl. Fl. v. i. p. 275.—Mentha glomerata, Stokes Bot. Mat. Med. 616.—Gray's Nat. Arr. v. ii. p. 361.—Mentha aquatica seu Sisymbrium, Ray's Syn. p. 233.—Joluson's Gerarde, p. 684.—Mentha aquatica, sive Sisymbrium hirsutum, Bault. Hist. v. iii. pt. 11. p. 224, with a figure.—Sisymbrium hirsutum, Ray's Syn. p. 233.—Origanum vulgare, Fl. Dan, t. 638.

LOCALITIES .- Margins of rivers, wet ditches, and in watery places, very common.

Perennial.—Flowers in August and September.

Root creeping to a great extent, and throwing up many stems. Stems from 1 to 3 feet high, generally upright, mostly branched 4-angled, clothed more or less with recurved hairs, and often tinged with purple. Leaves opposite, on shortish petioles, egg-shaped, serrated, rounded at the base, or somewhat heart-shaped, hairy. Bracteas spear-shaped, hairy. Flowers pale purple, in heads or whorls, their stalks densely covered, for the most part, but especially at the summit, with recurved, sometimes close-pressed, white hairs. Calyx tubular, furrowed, often purplish, besprinkled with resinous dots, and covered all over with hairs of various lengths, which are curved in a contrary direction from those of the stalks. Corolla pale purple, hairy on the outside. Stamens varying in length, usually longer than the corolla. Lower whorls often stalked.

This is a very variable species, the flowers are sometimes capitate, sometimes whorled, and sometimes the whorls are placed so close on the extremity of the branches as to form a spike. Sir J. E. SMITH, who paid particular attention to this difficult genus, has, in his "English Flora," described eight distinct varieties of this species, in which he includes Mentha aquatica, Sole's "Mentha Britannicae, t. 10 & 11.—M. palustris, ibid. t. 6; M. paludosa, ibid. t. 22.—M. piperita, Linn. Sp. Pl. p. 805. (not of Hudson, or Engl. Bot.)—M. Sativa, Engl. Bot. t. 448.—And two others described in the 3rd edition of "Ray's Synopsis," pp. 232 & 233. According to the observations of Mr. Bentham, the upper whorl or head of flowers, at least on the central branch, is always terminal; whereas in Mentha arvensis, a species equally common with this, but usually growing in corn-fields, the stem is constantly indeterminate.

Mentha hirsuta is a native of Europe, and Asiatic Russia, and now occurs in almost every part of the globe, but has probably migrated from Europe.

Mr. Sole says, "tea made of the green leaves of this species is excellent in all nervous and hysicrick cases." Mice are said to have a great aversion to the smell of mint; and laying a few green or dry leaves on any articles has been known to preserve them from their depredations.

We are told, in the Language of Flowers, that in Holstein, in Germany, the youths carry to funerals a branch of mint as a mark of grief.

Æcidium Menthæ, DC. Hook. Brit. Fl. v. ii. pt. 11. p. 369.; and Uredo Labiatarum, DC. p. 378, are often parasitic on the stems and leaves of this and some other species.

Actions of

9



Juneus Lamprocarpus Thining printed

JUNCUS*.

Linnean Class and Order. HEXA'NDRIA†, MONOGY'NIA

Natural Order. Ju'nceæ‡ Decand.—Lindl. Syn. p. 273.; Intr. to Nat. Syst. of Bot. p. 270.—Rich. by Macgilliv. p. 397.—Loud. Hort. Brit. p. 541.—Mack. Fl. Hibern. p. 289.—Hook. Brit. Fl. (4th edit.) p. 424.—Junci, Juss. Gen. Pl. p. 43.—Sm. Gram. of Bot. p. 72.—Juncales; sect. Juncinæ; type, Juncaleæ; Burn. Outl. of Bot. v. i. pp. 403 & 416.—Tripetaloideæ, Linn.

GEN. CHAR. Calyx (Perianthium) (see fig. 1.) inferior, of 6 oblong, pointed, permanent, glumaceous sepals; 3 of them internal and rather the smallest. Corolla none. Filaments (see fig. 1.) 6, hair-like, short, inserted into the base of the sepals; three of them sometimes wanting. Anthers oblong, upright, of 2 cells, bursting lengthwise. Germen (see fig. 2.) superior, triangular. Style simple, cylindrical, short, deciduous. Stigmas (see fig. 2.) 3, elongated, tapering, downy. Capsule (see figs. 3 & 4.) triangular, smooth, invested with the permanent calyx, of 3 cells, and 3 valves, each valve with the seed-bearing dissepiment in the middle. Seeds (fig. 5.) numerous, very small, roundish, attached to the inner edge of each dissepiment, often furnished with a partial tunic. (Leaves smooth, mostly rounded.)

The inferior calyx of 6 glumaceous sepals; and the 3-celled, 3-valved, many-seeded capsule; will distinguish this from other genera, without a corolla, in the same class and order.

Twenty-three species British.

JUNCUS LAMPOCA'RPUS. Shining-fruited jointed Rush. Lesser-jointed Rush.

SPEC. CHAR. Stem ascending, leafy, compressed. Leaves apparently jointed, compressed. Panicle upright, compound, forked. Inner Sepals bordered. Capsule egg-shaped, 3-sided, coloured, highly polished, longer than the calyx.

Engl. Bot. t. 2143.—Ehrhart's Decades Calamariarum, N⁰. 126. fide SMITH.—Davies in Tr. of Linn. Soc. v. x. p. 13.—Bicheno in Tr. of Linn. Soc. v. xii. p. 325.—Sm. Engl. Fl. v. ii. p. 175.—With. (7th ed.) v. ii. p. 416.—Gray's Nat. Arr. v. ii. p. 167.—Lindl. Syn. p. 275.—Hook. Brit. Fl. p. 162.—Macr. Man. Brit. Bot. p. 241.—Davies' Welsh Bot. p. 34.—Relh. Fl. Cant. (3rd ed.) p. 143.—Purt. Midl. Fl. v. iii. p. 352.—Hook. Fl. Seot. p. 109.—Grev. Fl. Edin. p. 80.—Fl. Devon. pp. 62 & 128.—Johnst. Fl. of Berw. v. i. p. 80.—Winch's Fl. of Northumb. and Durh. p. 23.—Walker's Fl. of Oxf. p. 98.—Bab. Fl. Bath. p. 52.; Prim. Fl. Sarn. p. 97.—Dick. Fl. Abred. p. 33.—Irv. Lond. Fl. p. 103.—Luxf. Reig. Fl. p. 30.—Cow. Fl. Gulde, p. 35.—Mack. Catal. Pl. of Irel. p. 33.; Fl. Hibern. p. 291.—Juncus articulatus, Linn. Sp. Pl. p. 465, α and β.—Iluds. Fl. Angl. (2nd ed.) p. 149, α.—Willd. Sp. Pl. v. ii. pt. 1. p. 211, α.—Sm. Fl. Brit. v. i. p. 379, α.—With. (2nd ed.) v. i. p. 361, α and β.—Leers', p. 88, α. t. 13. f. 6.—Purt. Midl. Fl. Oxon. p. 114.—Abbot's Fl. Bedf. p. 79.—Juncus foliis articulosis, floribus umbellatis, Tourn.

Fig. 1. Calyx, Stamens, and Pistil.—Fig. 2. Germen, Style, and Stigma.—Fig. 3. Capsule, opening by its 3 valves.—Fig. 4. Transverse section of the same.—Fig. 5. A Seed.—All more or less magnified.

^{*} From jungo, to join; some of the species being used as a cord to tie things together.—In the language of flowers the Rush is the emblem of docility.

† See folio 33, note +.

† See folio 379, a,

Inst. p. 247.—Ray's Syn. p. 432.—Gramen junceum folio articulato aquaticum, Bauh. Pin. p. 5.—Scheuchz. Agr. pp. 331 & 333.—Gramen aquaticum, Johnson's Gerarde, p. 13.

LOCALITIES .- In boggy ground, and watery places; common.

Perennial.-Flowers in July and August.

Root creeping. Culms (stems) upright, or ascending, from 12 to 18 inches high, hollow in the upper part, filled with pith in the lower, without internal partitions, slightly compressed, with from 2 to 4, or 5 joints, smooth, leafy, scaly at the base. Leaves from 2 to 5 on each stem, alternate, sheathing, 2-ranked, nearly upright, forming an acute angle with the stem, compressed, taper-pointed, smooth, hollow, divided internally by numerous transverse partitions, which give a knotty or jointed appearance, especially to the dried leaves. Panicle terminal, upright, compound, its branches strong, elongated, so that the heads of flowers are remote, one above another, on each simple branch, with very few at the forks. Bracteas leafy, membranous, under the panicle, or its main branches; the interior ones smaller, taper-pointed; innermost, under each head crowded, egg-shaped, short and filmy. Sepals shorter than the capsule, oblong, spear-shaped, pointed; the 3 inner ones with a somewhat more evident white membranous border. Capsule very large, egg-shaped, with 3 sharp angles, of a dark chocolate colour, tipped with the sharp-pointed, permanent style, much longer than the calyx, highly polished, as if varnished, giving the panicle a blackish appearance even at a distance. Secds small, not tunicated.

Sir W. J. HOOKER considers Juneus nigritellus of E. B. Supp. t. 2643, (J. polycephalus Sm. Engl. Fl. v. ii. p. 177,) as a variety of this. It differs in the very simple ramification of the panicle, and the few but large heads containing from 5 to 8 spreading flowers, each upon a short stalk. It was found in the Highlands of Scotland by Mr. G. Don.

The species with which J. lampocarpus is most likely to be confounded, are acutifiorus and obtusifiorus, but, when in an advanced state, it is readily distinguished from them both by its large shining dark capsules. While early in flower, the best marks are the more simple panicle, and the somewhat obtuse calyx.

In wet seasons, when the seeds of lampocarpus are sparingly perfected, the stems throw out large tufts of leaves, as figured by CASPER BAUHEN, in his Prodromus Theatri Botanici, p. 12.; and by PARKINSON, in his Theatrum Botanicum, at p. 1270. Mr. DAVIES remarks, that he never observed these tufts of leaves in either J. acutiforus or obtusiforus. See Sm. Engl. Fl. v. ii.; and Tr. of Linn. Soc. v. x., and v. xii.

It was formerly, a custom in England to strew floors with rushes, a custom which still prevails in particular places. At Ambleside, in Westmoreland, the ancient ceremony of strewing the church-floor is still preserved, though there, as in most other churches, the plaited mat has superseded the permanent use of strewn rushes. This ceremony is called Rush-bearing; and the day on which the festival is held is marked as a holiday in the rushic calendar. This custom is also still continued at Rochdale, at Warton, at Deptford, and several other places.

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Section 1

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Execum filiforme. Least Gentianella. O

CMathers, Del. & Sc

Pub. by W. Basto Belovic Garden Colored. 1840.

E'XACUM*.

Linnean Class and Order. Tetra'ndria +, Monogy'nia.

Natural Order. Gentia'neæ, Dr. R. Brown.—Lindl. Syn. p. 177.; Introd. to Nat. Syst. of Bot. p. 215.—Rich. by Macgilliv. p. 444.—Loud. Hort. Brit. p. 526.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 173.—Mack. Fl. Hibern. p. 185.—Hook. Brit. Fl. (4th ed.) p. 413.—Gentia'næ, Juss. Gen. Pl. p. 141.—Sm. Gram. of Bot. p. 106.—Syringales; subord. Primulosæ; sect. Gentianinæ; type, Gentianaceæ; Burn. Outl. of Bot. v. ii. p. 900,

958, & 1008.—Rota'ceæ, Linn.

GEN. CHAR. Calyx (fig. 1.) inferior, of 1 sepal; divided about half way down into 4 equal, pointed segments, permanent. Corolla (see figs. 2 & 3.) of 1 petal, with a swelling tube the length of the calyx; and a 4-parted, spreading limb; segments equal, imbricate in the bud. Filaments (see fig. 3.) 4, from the tube of the corolla, between the segments of the limb, and much shorter, thread-shaped, nearly equal, upright. Anthers roundish-oblong, of 2 cells. Germen (see fig. 4.) oval, superior. Style (see fig. 4.) terminal, thread-shaped, a little inclining, as long as the limb. Stigma capitate, undivided. Capsule (figs. 6 & 7.) filling the tube of the corolla, which gradually enlarges with it, elliptical, compressed, imperfectly 2-celled. Seeds numerous, small, rough, attached to a fixed, or finally separated, double receptacle (placenta).

The 4-cleft calyx; the monopetalous, inferior, salver-shaped, 4-cleft corolla, with a swelling tube; the roundish-oblong anthers of 2 cells, opening longitudinally; the entire stigma; and the imperfectly 2-celled, many-seeded capsule;

will distinguish this from other genera in the same class and order.

One species British.

E'XACUM FILIFO'RME. Filiform Exacum. Least Gentia-

nella. Marsh Centory.

SPEC. CHAR. Stem thread-shaped, forked. Leaves chiefly radical, spear-shaped, or spatulate, single-nerved, sessile. Flowers

on long pedicels.

Engl. Bot. t. 235.—Hook. Fl. Lond. t. 86.—Sm. Fl. Brit. v. i. p. 182.; Engl. Fl. v. i. p. 212.—Willd. Sp. Pl. v. i. pt. 1. p. 638.—With. (7th ed.) v. ii. p. 229.—Ait. Hort. Kew. (2nd ed.) v. i. p. 250.—Lindl. Syn. p. 177.—Hook. Brit. Fl. p. 66.—Macr. Man. Brit. Bot. p. 157.—Fl. Devon. p. 28.—Irv. Lond. Fl. p. 225.—Luxf. Reig. Fl. p. 13.—Mack. Catal. Pl. of Irel. p. 18.; Fl. Hibern. p. 185.—Microcale filiforme, Link. Don's Gen. Syst. of Gard. and Bot. v. iv. p. 213.—Franquevillia minima, Gray's Nat. Arr. p. 338.—Gentiana filiformis, Linn. Sp. Fl. p. 335.—Iluds. Fl. Angl. (2nd ed.) p. 103.—Fl. Dan. t. 324.—With. 1st ed. v. i. p. 142.; 2nd ed. v. i. p. 263.—Cicendia filiformis, Reich.—Bab. Prim. Fl. Sarn. p. 61.—Centaurium palustre luteum minimum nostras, Ray's Syn. p. 286.—Vaill. Paris. p. 32. t. 6, f. 3.

LOCALITIES.—On sandy or turfy bogs.—Cornwall; Marsh between Penzance and Marazion; and by the cross road to St. Ives: Mr. H. C. WATSON, in N. B. G. Sandbanks between St. Blazey Bridge and the Par Sand: Mr. STACKHOUSE. In a ditch near the road leading to Bodmin, four niles from St. Michael's; Gorse Moor and Roche: Rev. J. P. Jones, in Bot. Tour, pp. 36 & 37. Gorse Moor, close by the side of the Truro and Bodmin road: August 14, 1840; Mr. W. Willis.—Devon; Here and there in the county: Hudson. More frequent in

Fig. 1. Calyx.—Figs. 2 & 3. Corolla.—Fig. 4. Germen, Style, and Stigma.—Fig. 5. Capsule.—Fig. 6. Capsule with valves separated.—Fig. 7. Transverse section of same.

^{*} From ex, Gr. out; and ago, Gr. to drive; from its supposed property of ejecting poison from the stomach.

† See folio 46, note +.

Devon than in other counties: Mr. Yonoe, in B.G. Babbacombe: H. Wooll-combe, Esq.—Dorset; On Wareham Common, by the side of the road as you go to Corfe Castle: Rev. Dr. Goodenough. Common on the sandy parts of leaths, especially on the borders of pits, pools, ditches, and bogs; about a mile from Sherford Bridge, in the road to Wareham; on Pool Heath, and by the Fleets; in the way from Corf Mullein to Pool; in Purbeck; heaths between Wimbourne and Ringwood; about Christchurch; and Morton, plentifully: Dr. Pultersy, in B. G.—Surrey? Abundant by the sides of the road, and on a moist sandy hillock, near a swamp, about midway between Pease-Pottage Gate and Starve-Mouse Plain, on Tilgate Forest; and on the banks of a pool, about half a mile to the north of the former station: Reigate Flora.—Sussex; Previous to the enclosure of Horsham Common, it grew there abundantly, and still grows plentifully in St. Leonard's Forest: T. H. Cooper, Esq. in N. B. G.—IRELAND. Sandy turf-bogs, near Bantry: Miss Hutchins, Mr. J. Drumond, and Mr. W. Wilson, in Fl. Hibernica. Near Cork; upon Dursey Island; and at Glengariff: Sir W. J. Hooker.

Andual.—Flowers from June to August.

Annual.-Flowers from June to August.

Root small, fibrous. Stem from 2 to 4 inches high, upright, nearly round, slender, flexuose, branched, more or less forked, smooth, leafy, especially at the base. Leaves spear-shaped, or approaching to spatulate, simple, entire, opposite, connate at the base, single-ribbed, somewhat fleshy; those near the root the largest, yet scarcely 3 lines long, spreading or slightly reflexed, near together; the others very remote, more narrow, upright. Peduncles terminal and lateral, upright, from 1 to 2 inches long, slender, single-flowered. Flowers small, yellow, opening only in bright sunshine. Calyx with 4 pointed segments, membranaceous at the margin. Corolla permanent, its tube closely appressed to the germen. Filaments short. Anthers a little exserted. Capsule covered with the permanent calyx and corolla. Seeds numerous, brown, somewhat egg-shaped, slightly angular, dotted; their receptacle (placenta) formed by the incrassated inflexed margins of the 2 valves of the capsule.

As well as of England and Ireland, this curious little plant is a native also of France, and Denmark; and of Chili, about Conception. It differs from Gentiana in the number of stamens and divisions of the calyx and corolla.

The specimen from which the drawing for the accompanying plate was made, was kindly communicated to me from Gorse Moor, Cornwall, by Mr. W. WILLIS, of St. Austell. Specimens of it have also been obligingly communicated by J. C. RICKEM, Esq. of East Leigh, Hants.

The plants which compose the Natural Order GENTIANEE are mostly herbaceous, seldom shrubby, usually smooth, with opposite, sometimes alternate, entire leaves, without stipulæ. The flowers are terminal or axillary. The calyx is inferior, of 1 sepal, divided, and permanent. The corolla is monopetalous, usually regular, withering or deciduous; the limb with an imbricated, twisted æstivation, sometimes only 4, but mostly 5, 6, 8, or 10-lobed. Stamens equal in number with the lobes of the corolla. Ovary solitary, 1- or 2-celled, many-seeded. Styles 1 or 2, either partially or wholly cohering. Stigmas 1 or 2. Capsule (sometimes a berry) manyseeded, with 1 or 2 cells, and generally 2 valves; the margins of the valves turned inwards, and in the genera with 1 cell, bearing the seeds; in the 2-celled genera the seeds are on a central receptacle. Albumen fleshy.

The plants of this order are innocuous, and remarkable for their exceeding bitterness, which makes them unfit for food, but at the same time renders them valuable tonic and stomachic medicines. It includes the following Bitish Genera:
1. Exacum, t. 400.—2. Erythræa, t. 367.—3. Gentiana, t. 185.—4. Swertia.—
5. Chlora, t. 69.—6. Menyanthes, t. 245.—7. Villarsia, t. 161.

ALPHABETICAL INDEX TO VOL. V.

1	PLATE		PLATE
Acorus Calamus, L	330	Listera Nidus-Avis, Hook.	357
Alisma Plantago, L	337	Luciola campestris, Sm.	379
Alyssum halimifolium, Curt	355	Lupulus communis, Gray .	342
Alyssum maritimum, Willd.	355	Luzula campestris, Br.	379
Alyssum minimum, L	355	Malaxis paludosa, Sw	394
Andromeda polifolia, L Anthemis Cotula, L	361	Maruta fætida, Cass.	328
Anthemis Cotula, L.	328	Matricaria Chamomilla, L.	335
Anthyllis vulneraria, L	397	Medicago sativa, L.	324
Apargia hirta, Sm.	323	Mehlotus officinalis, Pers.	363
Arctium Lappa, L.	333	Melissa Clinopodium, Bent.	. 346 398
Arctium major, Gray	333	Mentha aquatica, Huds	398
Arenaria laricifolia, Lightf	384 384	Mentha hirsuta, L.	376
Arenaria saxatilis, Huds	384	Myriophyllum verticillatum, L.	374
Arenaria verna, L	339	Myrrhis odorata, Scop. Neottia Nidus-Avis, Lindl	357
Artemisia Absinthium, L Arundo Phragmites, L	372	Nepeta Cataria, L.	378
Arundo vulgaris, Sch.	372	Ophrys Nidus-Avis, L	357
Atriplex hastata, Iluds	356	Ophrys paludosa, I	394
Atriplex patula, L.	356	Orchis albida, Willd	387
Betula alba	326	Origanum vulgare, L	354
Bromus mollis	348	Ornithopus perpusillus, L.	358
Callitriche aquatica, Sm	392	Orobanche minor, Sm.	381
Callitriche veina, L	392	Orobanche minor, Sm Oxalis Acetosella, L	327
Caucalis Anthriscus, Huds	347	Oxalis vulgaris, Gray .	327
Chærophyllum odoratum, Hook.	374	Panicum sanguinale, L	332
Chenopodium angulatum, Gray	352	Peristylus albidus, Lindl	387
Chenopodium hybridum, L	352	Petroselinum segetum, Koch.	360
Chironia Centaurium, Curt.	367	Peucedanum Ostruthium, Lind	. 370
Cicuta virosa, L	395	Phragmites communis, Trin	372
Cistus Helianthemum, L	393	Pinus sylvestris, L	389
Clinopodium vulgare, I	346	Potamogeton natans, L.	350
Cochlearia officinalis, L	375	Potentilla Tormentilla, Sib.	341
Corylus Avellana, L	338	Quercus pedunculata, Willd. Quercus Robur, L.	371 371
Crepis tectorum, Huds	366	Panhanus Panhanistaum I	359
Crepis virens, L	366 332	Raphanus Raphanistrum, L.	391
Digitaria sanguinalis, Scop.	357	Rhodiola rosea, L	396
Epipactis Nidus-Avis, Sw Erodium moschatum, Sm	362	Rhynchospora alba,	345
Ervum hirsutum, L	322	Rosa arvensis,	325
Erythræa Centaurium, Pers	367	Rosa repens. Jacq.	325
Euphorbia helioscopia, L	368	Rubus abruptus, Lindl	334
Fagus sylvatica, L.	331	Rubus discolor, Lindl	334
Festuca pratensis, Huds	324	Rubus fruticosus, L	334
Fraxinus excelsior, L	382	Satyrium albidum, L	387
Gentiana Centaurium, L	367	Scandix odorata, L	374
Gentiana filiformis, L	400	Schænus albus, L	3 95
Glyce maritima, Lindl	355	Schedonorus pratensis, Gray	324
Habenaria albida, Br	387	Scrophularia nodosa, L.	385
Helianthemum vulgare, Gært.	393	Sedum acre, L	364
Hippocrepis comosa, L.	369	Sedum Rhodiola, Lindl	391
Hordium murinum, L.	344	Sinapis nigra, L.	336
Humulus Lupulus, L	342	Sison segetum, L.	360
Hyoscyamus niger, L.	321	Spergula arvensis, L.	388
Hyoscyamus vulgaris, Ray .	321 351	Spergularia arvensis, Don.	383 323
Iberis amara, L	370	Thrincia hirta, Roth.	380
Jasione montana, L	373	Tillæa muscosa, L	347
	399	Tordylium Anthriscus, L Tormentilla erecta, L	341
	379	Tormentilia officinalis, Sm.	341
	399	Tragopogon pratensis, L.	390
	399	Trientalis Europæa, L.	343
	355	Trifolium officinale, Willd.	363
	333 .	Typha angusifolia, L	377
Lathræa simplex, Gray .	365	Ulmus effusa, Sib	386
Lathræa squamaria, L	365	Ulmus montana, Bauh.	386
Leontodon hirtum, L	323	Utricularia vulgaris, L	349
	340	Vaccinium Vitis Idæa, L	383
Linum Usitatissimum, L	353	Vicia hirsuta, Gray	322

ENGLISH INDEX TO VOL. V.

Alleluja	•	327	Mossy Red Shanks .	380
Ash, Common		382	Mountain Chickweed	384
Basil-weed	•	346	Musky Heron's-bill .	362
Beech, common		331	Mustard, Common	336
Birch, white	•	326	Northern Linnæa	340
Bird's-foot Bird's-nest		358 357	Nep	378
	•		Oak, Common British .	371
Biting Stone-crop	•	364	Pick-needle	362
Bitter Candy-tuft	•	351 334	Pick-purse	388
Black Henbane .		321	Poly Mountain . :	361 329
Black Mustard	•	336	Purple Lucerne	
Bladder-wort		349	Radish, Wild	359
	•	381	Red Currant	345
Broom-rape, Lesser Brownwort			Red Whortle-berry	383
Burdock	•	385 333	Reed, Common	372
Calamus Aromaticus .		330	Reed-mace :	377
Cat-mint	•	378	Rock-Rose	393
		377	Rose-wort	391
Cat's-tail, Lesser .	•	367	Scotch Fir	389
Centaury		343	Scotch Pine	389
Chickweed Winter-green	•		Scurvy-grass	375
Clown's Mustard		351	Septfoil	341
Common Flax	•	353	Sheep's Scabious	373
Corn Fever-few		335	Shining-fruited Jointed Rush .	399
Corn Hone-wort	•	360	Shrubby Bramble	334
Corn Spurrey		388	Soft Brome-grass	348
Corn Parsley	•	360	Spoon-wort	375
Cow-berry		383	Squirrel-tail Grass	344
Cuckoo-bread	•	327	Stinking Chamomile .	328
Dandelion, Smaller Rough	•	323 393	Stinking Mayweed	328
Dwarf Cistus			Stubwort	327 366
Elm, Mountain .	•	386	Succory Hawkweed	
Fat-hen		356	Sun Spurge	368
Field Dog-rose	•	325	Sweet Alyssum	355
Figwort, knotted rooted,		385	Sweet Cicely	374
Finger-Grass	•	332	Sweet Flag	337
Floating Pond-weed .		353 350	Sweet Rush	330 322
	•		Tare, Hairy-podded Tine Tare	322
Garnet Berries		345		341
Go-to-bed at Noon . Great Chervil	•	390 374	Tormentil	369
		365	Two-flowered Linnæa	340
Greater Toothwort Great Masterwort	•	370	Upright Hedge-Parsley	347
Great Water Plantain .		337	Vernal Sandwort	384
Hazel-nut	•	338	Wall Barley	344
Hairy Cook's foot		332	Wall Pepper	364
Hairy Cock's-foot Hairy Mint	•	398	Wart-wort	368
Hairy Thrincia		323	Water Cowbane	395
Hog-bean	•	321	Water Cowdanc	392
Hooded Milforl		349	Water Milfoil	376
Hop	•	342	Water Starwort	392
Horned Clover		329	Way-side Barley	344
Hurr-burr	•	333	White Beak-rush	396
Hybrid Goosefoot .		352	White Charlock	359
Kidney-Vetch .	•	397	White Cluster-rooted Orchis .	387
Lady's Fingers	•	397	White Hand-Orchis .	387
Least Gentianella	•	400	Wild Basil	346
Lesser Centaury		367	Wild Chamomile	335
Lesser Jointed-Rush	•	399	Wild Orach	356
Lint		353	Wild Rosemary	361
Lob-grass	•	348	Wood Beech	331
Maple Blite		352	Wood-Rush, Field	379
Marjorani, Common .	•	354	Wood-Sorrel	325
Marsh Andromeda .		361	Wormwood	339
Marsh Twayblade .	•	394	Wych Elm	386
Mcadow Fescue grass .		324	Wych Ilazel :	386
Mclilot, Common Yellow .	•	363	Yellow Goat's-bear!	390
Mint, hany		398	Yellow Succory	366
,,		000	20.1017 040007	

SYSTEMATICAL INDEX TO VOL. V.

Diandria. 2 stamens.	Lathræa squamaria
Utricularia vulgaris . 349	Scrophularia nodosa . 385
Fraxinus excelsior 382	Linnæa borealis 340
TRIANDRIA. 3 stamens.	Orobanche minor . 381
	TETRADYNAMIA. 6 stamens; 4 longer
Rhynchospora alba 396	than the other 2.
Festuca pratensis . 324	Iberis amara
Bromus mollis	Cochlearia officinalis . 375
Arundo phragmites . 372	Koniga maritima
Hordium murinum 344	Sinapis nigra
Digitaria sanguinalis . 332	Raphanus Raphanistrum 359
Tetrandria. 4 stamens.	Monadelphia. Filaments united
Exacum filiforme . 400	into one set.
Tillæa muscosa . 380	
Potamogeton natans 350	Erodium moschatum . 362
Totalinogoton initiality	December 57
PENTANDRIA. 5 stamens.	DIADELPHIA. Filaments united into two sets.
Erythræa Centaurium . 367	Anthullia mula anamia
Hyoseyamus niger 321	Anthyllis vulneraria 397
Jasione montana . 373	Ervum hirsutum . 322
Ribes rubrum 345	Ornithopus perpusillus . 358
Cicuta virosa . 395	Hippocrepis comosa . 369
Petroselinum segetum	Melilotus officinalis
Imperatoria Ostruthium . 370	Medicago sativa 329
Torilis Anthriccus 347	C
Myrrhis odorata . 374	Syngenesia. Anthers united into a
Chenopodium hybridum . 352	tube. Flowers compound.
Ulmus montana 386	Tragopogon pratensis . 390
Linum Úsitatissimum 353	Thrincia hirta . 323
Billum Csitatissimum	
HEXANDRIA. 6 stamens.	Crepis virens . 366 Arctium Lappa . 333
	Artemisia Absinthium . 339
Acorus Calamus 330	Matricaria Chamomilla 335
Juneus lampocarpus . 399	Anthemis Cotula . 328
Luzula campestris 379	
Alisma Plantago . 337	GYNANDRIA. Stamens situated upon
	the style or column, above the
HEPTANDRIA. 7 stamens.	germen.
Trientalis Europæa . 343	Peristylus albidus . 387
A	Listera Nidus-Avis 357
OCTANDRIA. 8 stamens.	Malaria maludasa 201
***************************************	Malaxis paludosa . 394
Vaccinium Vitis Idæa . 383	Monœcia. Stamens and Pistils in
Vaccinium Vitis Idæa . 383	MONECIA. Stamens and Pistils in
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens.	Monœcia. Stamens and Pistils in separate flowers, but both on the
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant.
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Aienaria verna . 384	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368
Vaccinium Vitis Idæa . 383 DECANDRIA, 10 stamens. Andromeda polifolia . 361 Aienaria verna . 384 Sedum acre . 364	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 393
Vaccinium Vitis Idæa . 383 DECANDRIA, 10 stamens. Andromeda polifolia . 361 Arenaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377
Vaccinium Vitis Idæa . 383 DECANDRIA, 10 stamens. Andromeda polifolia . 361 Aienaria verna . 384 Sedum acre . 364	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376
Vaccinium Vitis Idæa 383 DECANDRIA. 10 stamens Andromeda polifolia 361 Aienaria verna 384 Sedum acre 364 Oxalis Acetosella 327 Spergula arvensis 388	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum vernicillatum . 376 Quercus Robur . 371
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Arenaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens,	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331
Vaccinium Vitis Idæa 383 DECANDRIA. 10 stamens Andromeda polifolia 361 Aienaria verna 384 Sedum acre 364 Oxalis Acetosella 327 Spergula arvensis 388	Monœcia. Stamens and Pistils in separate Rowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Aienaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens, placed on the calyx.	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Corylus Avellana . 338
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Aienaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens, placed on the calyx. Rosa arvensis . 325	Monœcia. Stamens and Pistils in separate Rowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326
Vaccinium Vitis Idæa 383 DECANDRIA. 10 stamens. Andromeda polifolia 361 Arenaria verna 384 Sedum acre 364 Oxalis Acetosella 327 Spergula arvensis 388 Icosandria. 20 or more stamens, placed on the calyx. Rosa arvensis 325 Rubus fruticosus 334	Monœcia. Stamens and Pistils in separate Rowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Corylus Avellana . 338 Pinus sylvestris . 389
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Aienaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens, placed on the calyx. Rosa arvensis . 325	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Corylus Avellana . 338 Pinus sylvestris . 389 Diœcia. Stamens and Pistils in se-
Vaccinium Vitis Idæa 383 DECANDRIA. 10 stamens. Andromeda polifolia 361 Aienaria verna 384 Sedum acre 364 Oxalis Acetosella 327 Spergula arvensis 388 Icosandria. 20 or more stamens, placed on the calyx. Rosa arvensis 325 Rubus fruticosus 334 Tormentilla officinalis 341	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Corylus Avellana . 338 Pinus sylvestris . 389 Diœcia. Stamens and Pistils in separate flowers, and on different
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Arenaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens, placed on the calyx. Rosa arvensis . 325 Rubus fruticosus . 334 Tormentilla officinalis . 341 POLYANDRIA. 20 or more stamens,	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Corylus Avellana . 338 Pinus sylvestris . 389 Diœcia. Stamens and Pistils in separate flowers, and on different plants.
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Arenaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens, placed on the calyx. Rosa arvensis . 325 Rubus fruticosus . 334 Tormentilla officinalis . 341 POLYANDRIA. 20 or more stamens, placed on the receptacle	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Cory lus Avellana . 338 Pinus sylvestris . 389 Diœcia. Stamens and Pistils in separate flowers, and on different plants. Humulus Lupulus . 342
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Aienaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens, placed on the calyx. Rosa arvensis . 325 Rubus fruticosus . 334 Tormentilla officinalis . 341 POLYANDRIA. 20 or more stamens, placed on the receptacle Helianthemum vulgaie . 393	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Corylus Avellana . 338 Pinus sylvestris . 389 Diœcia. Stamens and Pistils in separate flowers, and on different plants.
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Arenaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens, placed on the calyx. Rosa arvensis . 325 Rubus fruticosus . 334 Tornentilla officinalis . 341 POLYANDRIA. 20 or more stamens, placed on the receptacle Helianthemum vulgale . 393 DIDYNAMIA. 4 stamens; two longer	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Corylus Avellana . 338 Pinus sylvestris . 389 Diœcia. Stamens and Pistils in separate flowers, and on different plants. Humulus Lupulus . 342 Rhodiola 10sea . 391
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Aienaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens, placed on the calyx. Rosa arvensis . 325 Rubus fruticosus . 334 Tormentilla officinalis . 341 POLYANDRIA. 20 or more stamens, placed on the receptacle Helianthemum vulgaie . 393	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Cory lus Avellana . 338 Pinus sylvastris . 389 Diœcia. Stamens and Pistils in separate flowers, and on different plants. Humulus Lupulus . 342 Rhodiola 10sea . 391 Polygamia. Stamens and Pistils se-
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Arenaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens, placed on the calyx. Rosa arvensis . 325 Rubus fruticosus . 334 Tormentilla officinalis . 341 POLYANDRIA. 20 or more stamens, placed on the receptacle Helianthemum vulgate . 393 DIDYNAMIA. 4 stamens; two longer than the other two.	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Corylus Avellana . 338 Pinus sylvestris . 389 Diœcia. Stamens and Pistils in separate flowers, and on different plants. Humulus Lupulus . 342 Rhodiola 10sea . 391 Polygamia. Stamens and Pistils separate in some species, united in
Vaccinium Vitis Idæa . 383 DECANDRIA. 10 stamens. Andromeda polifolia . 361 Arenaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens, placed on the calyx. Rosa arvensis . 325 Rubus fruticosus . 334 Tormentilla officinalis . 341 POLYANDRIA. 20 or more stamens, placed on the receptacle Helianthemum vulgale . 393 Didynamia. 4 stamens; two longer than the other two. Mentha hirsuta . 398	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Corylus Avellana . 338 Pinus sylvestris . 389 Diœcia. Stamens and Pistils in separate flowers, and on different plants. Humulus Lupulus . 342 Rhodiola rosea . 391 Polygamia. Stamens and Pistils separate in some species, united in others, either on the same, or on
DECANDRIA. 10 stamens. Andromeda polifolia . 361 Arenaria verna . 384 Sedum acre . 364 Oxalis Acetosella . 327 Spergula arvensis . 388 ICOSANDRIA. 20 or more stamens, placed on the calyx. Rosa arvensis . 325 Rubus fruticosus . 334 Tormentilla officinalis . 341 POLYANDRIA. 20 or more stamens, placed on the receptacle Helianthemum vulgaie . 393 DIDYNAMIA. 4 stamens; two longer than the other two. Mentha hirsuta . 398 Origanum vulgare . 354	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Corylus Avellana . 338 Pinus sylvestris . 389 Diœcia. Stamens and Pistils in separate flowers, and on different plants. Humulus Lupulus . 342 Rhodiola 10sea . 391 Polygamia. Stamens and Pistils separate in some species, united in
Vaccinium Vitis Idæa	Monœcia. Stamens and Pistils in separate flowers, but both on the same plant. Euphorbia helioscopia . 368 Callitriche verna . 392 Typha angustifolia . 377 Myriophyllum verticillatum . 376 Quercus Robur . 371 Fagus sylvatica . 331 Betula alba . 326 Corylus Avellana . 338 Pinus sylvestris . 389 Diœcia. Stamens and Pistils in separate flowers, and on different plants. Humulus Lupulus . 342 Rhodiola rosea . 391 Polygamia. Stamens and Pistils separate in some species, united in others, either on the same, or on

Cryptogamous Plants noticed.

Natural Orders described.

er gprogamous x tants r		cca.	
		FOLIO	
Mcidium Cichoracearum		390 a	
Reidium Menthæ .		398 a	
Pini	·	389 a	
Tragopogonis		390 a	
Agyrium rufum .		389 a	
Aregma bulbosum .		334 a	
Bryum ligulatum .		331 a	
Cenangium ferruginosum		389 a	
Daerymyces stillatus .		389 a	
Dothidea belulina .		326 a	1
Ribesia .		345 a	1
Erineum betulinum .		326 a	1
		331 a	1
Faginium .		326 a	1
Erysiphe Aretii .		333 a	
macularis .		342 a	1
Hysterium conigenum		389 a	İ
Hysterium Fraxini .		382 a	1
Lophium clatum .		389 a	1
mytilinum .		389 a	1
Peziza Chrsocoma .		389 a	1
conigena .		389 a	1
Phacidium Pini .		389 a	1
l'uccinia graminis .		372 a	1
Rubi		334 a	1
Umbelliferarum		374 a	1
Septoria Ulmi .		386 a	1
Sphæria arundinacea		372 a	1
cinnabarina .		345 a	I
concentrica .		382 a	1
-coronata .		345 a	1
nortions		382 a	1
gelatinosa .		389 a	I
		389 a	1
pinastri		389 a	1
pruinosa .		382 a	ı
sordaria •		389 a	ı
Strigosa .		389 a	ĺ
Stictis parallela		389 a	ı
Uredo Euphorbiæ .		368 a	
Labiatarum .		398 a	
ovata .		326 a	
Petroselini .		374 a	

			FOLIO
Betulineæ			326 a
Callitrichineæ			392 a
Cistinea: .			393 a
Crassulaceæ			364 a
Fluviales .			350 a
Gentianæ .			400 a
Geraniaceæ			362 a
Grossulaceæ			345 a
Halorageæ			376 a
Junceæ .			379 a
Lentibulariæ			349 a
Lineæ .			353 n
Orchideæ .			387 a
Orobancheæ			381 a
Oxalideæ .			327 a
Solaneæ			321 a
Ulmaceæ .			386 a
Urticeæ .			342 a

N. B. When a follows the number of the folio, it indicates a reference to the second page of that leaf.

CORRECTIONS and ADDITIONS.

Folio 340 a, line 33, for indiginous, read indigenous.

Folio 373 a, line 7 from the bottom, for the first, read at first. Folio 391 a, line 15 from the bottom, for devoloped, (in some copies,) read

developed.

Echinospermum Lappula, Lehm. Asper. p. 121.—Myosotis Lappula, Linn. Sp. Pl. p. 189, has been found wild near Southwold, Suffolk, by the Rev. Mr. Holms, of Harleston, Norfolk. It is a native of Sweden, Denmark, Germany. France, Switzerland, and Italy; also of Asia, and North America, among rubbish, stones, and on walls; and of China, on mountains; but it had not, I believe, been found in a wild state, in England, until Mr. Holms discovered it in the station above mentioned, in 1839. It was cultivated in the Physic Garden at Edinburgh as long ago as 1683. See Sutherl. Hort. Med. Edinb.









QK306. B36 v.5 Baxter, William/British phaenogamous bot 3 5185 00120 0615



